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SPECIAL ARTICLE

The Eighth Census of Social Science Research in Tamil Nadu ... S. 1-33

EDITORIAL—SOME HIGHLIGHTS

I General Economic Scene

State:

Supplementary Estimates, Prices and Inter-State Status: March and April were warm dry months, with the temperature rising towards the late thirties by the end of April. A six member team visited the State at the end of March to review the rehabilitation programme resulting from the flood damage and the additional aid needed. The State government has presented to the Union government a relief and rehabilitation programme of Rs. 128 crores, against which the Union government has so far made available Rs. 33.91 crores (see Vol. VIII p. 65), 70 per cent of which was a loan and the rest grant. The Union government team expressed its satisfaction with the relief operations under way and its report on further assistance will be made to the Union government. One of the rehabilitation projects is the construction of disaster resistant community shelters located on high ground above the tidal and flood water levels, equipped with basic services, each capable of accommodating 500 persons at a time in 37 places in the cyclone affected areas at a total cost of Rs. 74 lakhs. The Centres will have a storm warning system including a simple automatic device. The Legislature approved in March supplementary estimates for Rs. 121 crores for 1977-78. Rs. 70.34 crores was for ways and means advances to statutory bodies and public sector corporations, including Rs. 30 crores for the Tamil Nadu Civil Supplies Corporation for procurement operations and Rs. 7 crores to the Tamil Nadu Land Development Bank. Rs. 14.41 crores are provided for centrally sponsored and sector schemes, Rs. 1.90 crores as central subsidy to SIPCOT, Rs. 2.96 crores for integrated city development of Madurai and Coimbatore, Rs. 2 crores as festival advance, Rs. 1.5 crores for rebate on sale of handloom and khadi, Rs. 1.50 crores for district and rural roads, Rs. 9 crores for education and Rs. 1.42 crores for rural works in the chronically drought affected areas of Ramanathapuram and Dharmapuri districts. Prices during March and April remained stable in the State, with some slight increase in the price of vegetables, milk and eggs. In addition to raising the procurement price of paddy (see last issue p. 222), the government at the end of March raised the traders' levy on paddy and

stocks moved out of the State except for movement from Thanjavur, Chingleput, North and South Arcot districts, where it will continue at 20 per cent for paddy and 10 per cent for rice. The State government has also requested the Union government to allot paddy from the Union pool to meet the commitment to supply boiled rice to family cardholders. The government is also completing its plan to open 1,050 consumer retail outlets besides converting fair price shops into full fledged retail shops in Madurai and Ramanathapuram districts, which means that every one of 2,121 villages in the 2 districts will have a retail shop. Further, large sized multi-purpose co-operative societies (LAMPS) are being started in tribal areas, one in Pudurnadu in North Arcot, an other in Arunthumalai in Salem basides the one in Dharmapuri, 3 in Salem, 2 in North Arcot and 1 in Tiruchi, with tribals on their managing boards. The 28th round of the NSS shows Tamil Nadu in terms of inter-state comparison as one of the backward states. As at October 1973-June 1974 covered by the round, Tamil Nadu had the third highest number of severe destitutes (after Uttar Pradesh and West Bengal) and third highest percentage (after Orissa, West Bengal and Kerala), the third largest number of destitutes (after Uttar Pradesh and West Bengal) and third highest percentage (after Orissa and West Bengal) and the second largest number living in poverty (after Uttar Pradesh) and the second highest percentage (after Orissa). Compared to the similar figures in 1970-71, there has been some improvement of severe destitution and destitution, with no improvement in poverty in the State. The relative position of Tamil Nadu is corroborated by the per capita figures for all the States for the 3 years beginning 1973-74 made available to the Lok Sabha by the Prime Minister in early April. With 1960-61 as the base, the national per capita income was Rs. 349 in 1973-74, and Rs. 366 in 1975-76, the growth percentage being 4.87. The Tamil Nadu per capita income was Rs. 369 in 1973-74, Rs. 319 in 1974-75 and Rs. 358 in 1975-76, so that during this period the per capita income grew at 2.98%. The 1975-76 income was still below that of 1973-74.

NGO and Farmers' disturbances: There was a 10 day strike of the NGOs in the State during March in support of their demand for increased emoluments and various other service conditions and benefits. At the end of that period, the government and the NGOs reached an agreement on some of the demands and agreed on means of settling the others. In April one of the farmers' organisations started an agitation for higher prices for agricultural products, lower irrigation and power rates, and various other demands. For one week, the agitation which turned violent led to considerable disruption in the economic life of the State. Here too the government has activated the committee of the organisations of farmers to review the demands and arrive at a settlement. It is hoped that the settlement to be reached will not be a repetition of that reached in 1972 (see Vol. II No. 8 p. 1, No. 9 p. 1) and the setback suffered by the economy and the State as a consequence.

Power: The power situation in the State in March and April was normal except that there was low power generation at Neyveli and some staggering of power supply to different parts of the State due to low frequency in the Tamil Nadu Electricity Board grid.

Low frequency conditions which began April 2 resulted in tripping of all the 6 units at the Neyveli Thermal station, which was generating 400 MW. The Tamil Nadu Electricity Board asked agriculturalists to pay current consumption charges at existing rates from December 1977 and has deferred collection of arrears from farmers for the period March 1977 to November 11, 1977 pending the recommendations of the committees of farmers' organisation referred to earlier. In April talks were under way in regard to sharing by Tamil Nadu the power purchased from Kerala to meet a part of Karnataka's needs. Karnataka which now has a cut of 55 per cent faces an increase to 65 per cent unless some relief is obtained from the Idikki power generation via Tamil Nadu. Agreement was reached between the Tamil Nadu and Karnataka governments to begin technical discussions from mid May on the Hogenekal power project which Tamil Nadu has proposed and Karnataka has agreed should be delinked from the Cauvery water dispute. The project will generate 1000 million units annually.

For the country as a whole, the power situation in March and April was marked by deficits in most areas. Because of critically low coal stocks a crisis developed during March in thermal plants, the most affected being Rajghat and Indraprastha units in Delhi, and 16 thermal plants in Maharashtra, further worsened in the west by the step up in coal supplies to the Ukai and Gandhinagar power stations due to the closure of the Tarapur unit. In this connection, the decision of the Nuclear Regulatory Commission of the US to deny the license for the export of 17,000 pounds of enriched uranium, will make the power situation of the country even more difficult. In West Bengal, the power cut has sent up fixed overheads of the mill industry by 30 per cent and increased the price of power by 3.5 paise per unit. What is disturbing is the secular decline in the per capita consumption of power in West Bengal from 110 KWH in 1965-66 to 104 KWH in 1975-76. Tamil Nadu on the other hand recorded a rise from 89 KWH to 142 KWH, Karnataka from 55 KWH to 142 KWH, Maharashtra from 106 KWH to 176 KWH and Gujarat from 83 KWH to 180 KWH. The installed capacity is 1,639 MW while the availability and peak load demands are 77 MW and 960 MW. Thus in Gujarat the average shortfall of power during the peak period is 200 MW. The State Electricity Boards are still as of April awaiting the final decision of the Union government following the excise on coal and the 5 per cent surcharge as basic excise (see last issue p. 207) and are hoping that the fairly unanimous pressure on the Union government by the States to drop these levies will have some effect. In April, work on the third stage of the Idikki project started involving construction of two dams for regulation in the Idikki reservoir at Moolamattam, at a total cost of Rs. 20 crores. The Union ministry has set up a standing committee of power ministers of 7 states to implement the January conference decisions of the Ministers meeting (see Vol. VIII p. 130). In early April the second 60 MW unit from the Pong power plant was commissioned and in the current year 2 more 165 MW units and 2 more 60 MW units of the Beas project will be commissioned. In Uttar Pradesh, the first 200 MW units at Obra was commissioned in December and the second unit is now being installed for commissioning the 200 MW units in September. With 3 more units to be

installed by 1980, the Obra-Rihand power complex will be the largest in Asia. Also in March negotiations with the World Bank for aid for the super thermal plants at Korba in Madhya Pradesh and Trombay in Bombay were completed. Korba will add 1,000 MW to India's power generation and planning is nearning completion on Ramagundem with a capacity of 2,130 MW for the Southern States, and Farakka (1,200 to 2,100 MW) to serve the eastern states. The Union ministry of energy announced in April that by 1982-83 an additional 18,500 MW will be installed at a cost of Rs. 16,000 crores. The Sixth Plan envisages electrification of 1 lakh villages and energisation of 20 lakh pumpsets. By 1982–83 the total installed capacity in the southern region would be 10,255 MW and the schemes of establishing regional load despatch centres in the southern region is being executed in 2 phases, the first phase being completed at a cost of Rs. 96.79 crores.

Water: The State government announced in March that negotiations are under way for holding a conference of Chief Ministers of Tamil Nadu, Karnataka and Kerala to resolve the dispute over the sharing of the Cauvery waters. In this connection the government has proposed to the Karnataka government that its West flowing rivers could be diverted to meet the irrigation needs of both states, similar to the discussions now under way with Kerala for utilising of its west flowing rivers. Also the Union government is being urged to set up a technical committee to study the eastward diversion of the rivers not covered by the agreement between the 2 States. Discussions are to start with the newly elected government in Andhra Pradesh on the project of bringing Krishna Waters to Madras.

Housing: A major decision in March which will help housing construction was the passing by the Legislature of a new Urban Land Ceiling Law, repealing the existing restrictive law. Under the new law the ceiling on vacant land for a single person is retained as before (500 sq metres), but for a family of 2 will be 1,000 sq. metres and for a family of 3, 1,500 sq. metres and for a family of four or more members 2,000 sq. metres. In Madurai, Coimbatore, Tiruchirapalli and Salem there is even further liberalisation, starting with 1,500 sq. metres for a single person. In respect of land with building, a building regulation area of 500 sq. metres are an additional appurtenant land of 500 sq. metres is allowed for buildings built upto 1973. There are separate ceilings for industrial undertakings and exemptions for charitable and religious trusts. The amount payable for excess vacant land acquired by government is raised to a reasonable level. The city Corporation is adopting 100 slums and plans to improve living conditions in them. They are to be provided with roads, electric lights, drainage, water supply, sanitary facilities, community centre and nursery schools involving a cost of Rs. 150 lakhs to benefit 1.5 lakh people. The port trust authorities are installing equipment costing Rs. 1 crore to suppress the dust emanating from the mechanised iron-ore loading facilities. The housing and the people in Royapuram area are severely affected by the iron-ore dust and the installation and functioning of the dust suppression equipment has now become urgent. The city corporation has adopted its budget for 1978–79 amounting to Rs. 20.82 crores. 100 more classrooms are to be built, and sanitary and drinking water facilities improved in the schools at a cost of Rs. 800 lakhs. Street lighting

is to be increased (Rs. 17.5 lakhs), a comprehensive zonal drainage scheme launched, a second sewage treatment plant at a cost of Rs. 2.37 crores is to be set up at Kodungaiyur, 3 child welfare centres and 3 markets are to be set up and new roads are to be laid at Kodambakkam. At a seminar in Madras in March organised by the Institute of Techno-Economic Studies, it has been estimated that the State will need to invest Rs. 14,200 crores by the end of the century to meet its housing needs, involving Rs. 3,800 crores in 72 years by the governmet and the rest by the private sector. It recommends that seed capital of Rs. 50 crores per annum for 10 years be provided by the public sector and the private sector be given a number of incentives such as abolition of urban land tax if lands less than 500 sq. metres are built on, exemption from income tax on income from housing etc. By 2001, the State population will be 63 millions, the housing stock needed will be 81 lakhs rural and 47 lakhs urban houses, involving a shortage of 90.5 lakh houses. The jobs created will be 14.84 lakhs annually.

Transport: The State's transport corporations have been asked to make a detailed survey of the transportation needs of rural areas. In selecting new villages to be connected by bus services, the maximisation of the numbers served will be the criterion. Based on the survey, the directional flow of traffic would be ascertained and new routes opened or existing ones extended. The transport corporations in the State report that in 1977–78 a net profit of Rs. 2.8 crores were made compared Rs. 46.53 lakhs in 1976 - 77. This generates Rs. 10.61 crores surplus resources for reinvestment in the transport sector. IDA of the World Bank is providing Rs. 4.05 for an addition of 285 buses, plus a number of bus terminals and shelters. With the agreement of the Union government, the State government is setting up a dry dock in Madras, which will execute maintenance repairs to ships, tugs, launches and floating craft, adding to the dry dock facilities in Calcutta and Vishakhapatnam and providing employment to 3,000-4,000 workers. Madras port also reports that in February 1978 it handled the highest tonnage of cargo - 8.7 lakh tonnes. For the second time, export of 4.4 lakh tonnes exceeded imports of 4.43 lakh tonnes. With the passing of the Port Laws Bill in March in the Lok Sabha, the old and new ports of Tuticorin are merged. This will make for more efficient and economic working.

Welfare: While a total of 5 lakh Harijan families have been given house sites to date, some 3–5 lakh Harijan families were still without housing of their own according to the government. The government has had to purchase private land for this purpose as the extent of available poramboke land was not adequate. From 1949 to February 28, 1978, 17,525 acres had been bought at a cost of Rs. 5.5 crores and distributed as 2.74 lakh house sites. In order to shorten the time it took to acquire land, the legislature passed the Tamil Nadu Acquisition of Land for Harijan Welfare Schemes Bill which vests the District Collector with power to acquire land and provide for payment of compensation in instalments with a view to phasing out the government's financial commitment. Towards the end of March the government launched a State wide publicity campaign against the evils of drinking and untouchability. All art

forms, particularly dráma were used in the propaganda campaign. Out of 6 drama entries five were awarded prizes of Rs. 1,000 each. It was decided that from next year the popular dramatic forms, *kathakalashepam* and *villupattu* should be used in the campaign.

National :

VI Plan: The draft Sixth Plan (1978-83) in 3 volumes was considered by the National Development Counil on March 18 and 19 and broadly approved subject to the detailed elaboration of the State's Plans and review of the Centre-State financial relations by a committee of Chief Ministers set up by the Council. The plan may be summarised as follows: (a) its goals are the achievement of full employment, the eradication of poverty and the creation of a more equal society; (b) the strategy proposed clearly formulates the objectives, ranking them where they are multiple and their trade off established when in conflict allocating resources to subserve the priorities and backed by appropriate economic and social policy instruments; (c) the principal objectives are: within two plan periods the removal of unemployment and significant underemployment, an appropriate rise in the standard of living of the poorest section of the people, and provision by the State of some of the basic needs to this group such as clean drinking water, adult literacy, elementary education, health care, rural roads, rural housing and minimum services for urban slums, for all of which a higher rate of growth (4.7 per cent) than in the past, moving towards significant reduction in the present disparities of incomes and wealth and the ensuring of the country's continued progress towards self-reliance as derived objectives; (d) the overall plan size is projected at Rs. 116,240 crores, of which the public sector outlay is Rs. 69,380 crores, which will be financed through Rs. 27,445 crores public sector savings, Rs. 62,365 crores household savings, Rs. 10,250 crores budgetary provisions, Rs. 9,075 crores saving from the private corporate sector, Rs. 3,955 crores net foreign aid, Rs. 1,970 crores savings from financial institutions and Rs. 1,180 crores drawing on foreign exchange reserves; (e) exports are expected to rise from Rs. 5,140 crores in 1976-77 to Rs. 7,750 crores in 1982-83 and inputs from Rs. 5,076 crores to Rs. 10,500 crores, which means Rs. 34,000 crores of exports and Rs. 42,825 crores of imports, leaving — Rs. 8,825 crores balance, to which should be added Rs. 5,475 crores as invisibles, debt servicing Rs. 4,430 crores and other transactions of Rs. 1,420 crores leaving a balance of payments gap of Rs. 9,200 crores against which gross foreign aid is put at Rs. 8,020 crores; (f) the financing of the public sector outlay of Rs. 69,380 crores (59.7 per cent of the total) is based on Rs. 54,000 crores being available from the balance of current revenue of State and Central governments (after meeting non-plan expenditure which is assumed to rise at 5 per cent per annum) at current rates of taxation, from public enterprises' surpluses, provident funds, term lending institutions, market borrowings and external aid. The gap of Rs. 16,000 crores will be covered by massive resources mobilisation by additional taxes and raising the surpluses from public enterprises. It is suggested that a major source would be the progressive reduction of subsidies paid by the Union government, raising the returns on public sector investments to 10 per cent and pushing up water and power rates. This massive resource mobilisation

will be a test of the reality and seriousness of the Plan; (g) the sectoral outlay proposed in crores (figures in the brackets are Fifth Plan outlays): Agriculture and related services Rs. 8,600 (Rs. 4,302), Irrigation Rs. 9,650 (Rs. 4,226), Industry Rs. 10,350 (Rs. 7,302), Energy, S and T Rs. 20,800 (Rs. 10,291), Transport and communications Rs. 10,625 (Rs. 6,917), Social Services Rs. 9,355 (Rs. 6,224). The sizeable increases in the outlay are agriculture from Rs. 3,109 to Rs. 5,808, Rural Development from Rs. 743 to Rs. 2,000, Irrigation from Rs. 3,089 to Rs. 7,250, Village and Small Industry from Rs. 510 to Rs. 1,410, Power from Rs. 7,016 to Rs. 15,750, water supply from Rs. 971 to Rs. 1,580; (h) some of the sectoral targets are foodgrains from 121 million tonnes in 1977–78 to 140.48 million in 1982–83, sugarcane from 156 million to 188 million tonnes, cotton from 64.30 to 42.50 lakh bales, oil seeds from 92 lakh tonnes to 112–115 lakh tonnes, coal from 103.20 million tonnes to 149 million tonnes, crude from 10.77 million tonnes to 18 million tonnes, cloth (mill sector) from 4,200 million metres to 4,600 million metres, decentralised sector from 5,400 million metres to 7,600 million metres, nitrogen fertilisers from 2,060 thousand tonnes to 4,100 thousand tonnes, phosphatic fertilisers from 663 thousand tonnes to 1,125 thousand tonnes, paper from 900 thousand tonnes to 1,250 thousand tonnes, cement from 19–20 million tonnes to 29–30 million tonnes, steel from 7.73 million tonnes to 11.80 million tonnes, aluminium from 180 thousand tonnes to 300 thousand tonnes, commercial vehicles from 40,000 to 65,000 and electricity from 130 GWH to 167 GWH. Other targets are milk 35.5 million tonnes, eggs 16,000 million units, wool 38 million kg, fish inland 12 lakh tonnes and marine 22 lakh tonnes; (i) this quantitative framework is the outcome of an 86 x 86 consistency model under which production possibilities and input requirement in agriculture were the major elements. To ensure the attainment of the employment objective, attention is paid to increased labour absorption in agriculture and allied activities, involving massive increases in expanding the rural infrastructure, covering not only irrigation but supply of seed and fertilisers and expansion of credit, storage and marketing. To maximise employment, the implementation of the land distribution programme is pushed forward and farm mechanisation is regulated. Agricultural growth which has averaged 2.13 per cent in 1976–77 is targetted at 4 per cent, involving increase in cropping intensity from 1.22 to 1.26 as a result of adding 17 million hectares to irrigation. Industrial growth which has averaged 4.3 per cent in the past is projected at 7 per cent by checking in the quantitative model the projection against industrywise calculations of demand capacity and production for all major industries; (j) besides agriculture, household and small scale industries producing mass consumption goods and which are employment intensive are intensified, in 9 industries starting with textiles and sugar their share is expanded along with improvement in quality of production, reduced costs, and extended markets; (k) to achieve employment, the Plan calls for area planning at the block model to identify activities suitable to a particular area and capable of absorbing local labour surpluses; (1) the employment dimensions of the Plan and its emphasis not on the rate but pattern of growth assume generation of 49.261 million man years of employment through 22.7 million man years in agriculture,

0.447 million man years in mining, 8.918 million in manufacturing including cottage industries and 17.128 million man years in construction services. If this is attained, the expansion of the labour force of 30 million in the Plan period and a major part of the 20 million man years currently unemployed will be found employment; (m) the minimum needs programme on which Rs. 800 crores were spent in the Fifth Plan has now an outlay of Rs. 4,180 crores—with (i) 32 million school age children being covered raising the coverage from 69 to 90 per cent, in age-group 6 to 14, and providing education to 66 million adult illiterates in the age-group 15-35, (ii) 1 PHC per block, 38,000 new sub-centres, with 400 PHC being upgraded into 30 bed hospitals and 1 community health worker and 1 trained *dai* for every 1,000 person, (iii) 1 lakh villages being provided with safe drinking water, (iv) half the villages with a population of 1,000-1,500 being linked by roads, (v) 40,000 villages being electrified, (vi) 8 million landless labourers being provided with housing and 13 million slum dwellers improved facilities and (vii) 2.6 million undernourished children from SC/ST being given nutrition and 4 million under the midday meal scheme, (n) the programmes of redistributive justice involves redistributing the surplus lands within five years, tenancy reform, restriction on the expansion of big houses and enabling workers to participate in management and equity shares of large employees, an effective public distribution system and distribution of credit and other input to the small farmer, organising the poor to fight for their rights and an incomes policy. As the Plan is finalised, measures must be taken for its faithful and full implementation. That in the end is the decisive factor.

Approved Finance Bill (1978-79): The Lok Sabha approved the budget proposals for 1978-79 (see last issue pp. 205-208) in the Finance Bill at the end of April accepting the modifications in the original, proposals made by the Finance Minister including a revenue loss of Rs. 27.93 crores in a full year and Rs. 25 crores in 1978-79 (Rs. 16.19 crores in indirect taxes and Rs. 8.3 crores in direct taxes) and to that extent adding to the increased deficit from Rs. 1,050 crores to Rs. 1,078 crores. The modifications in response to the debate are: (a) the amount of disallowance on advertisements is doubled from Rs. 20,000 to Rs. 40,000 and newspapers with a circulation below 15,000 exempt from tax: (b) a reduction of 10 per cent of the duty payment on the current generated after deducting the auxiliary consumption and discussion with industries like aluminium which are bulk users of power for further modification: (c) exemption of one per cent of the production in coal mines from the extra duty, being fixed at Rs. 7 per tonne for coking coal and Rs. 5 for other types: (d) acceptance of fixed deposits as eligible mode of investment for exemption of long term capital gains: (e) extending the concession of investment in equity shares of new industrial companies to companies giving long term finance to construction and house purchases: (f) continuing the scheme of export market development allowance to deserving export houses recognised by commerce ministry, small scale exporters and consultancy firms: (g) reduction in the quantum of deduction in the case of widely held domestic companies from 150 per cent to 133.3 per cent: (h) payment by everyone, whether assessed to income tax or not, of advance tax on a voluntary basis: (i) removing the conditions attached to

reduction in the basic excise duty on autorickshaws from 12.8 per cent to 10 per cent. These minor changes do not affect the main features of the Budget as a large resource mobilisation effort, with a built in inflationary potential. The importance of increased production– agricultural and manufacturing – to counter this potential needs no emphasis.

Prices: Wholesale prices showed a rise of 0.3 per cent in February with the index standing at 180.3 on February 25 and a further rise of 0.8 per cent in March the index standing at 181.7 on March 25. The February rise was due to tobacco (4.1), fuel, power and light (3.4), pulses (6.8) while apart from jute (–3.2) and sugar (–2.3), the other registered marginal increases or declines. In March, increases took place in sugar prices (3.5), tobacco (4.9), paper (3.2), chemicals (3) and non – electrical machinery (3.1) while all food prices fell, particularly oil seeds (–4.7) and edible oil (–2.2) per cent. The economic Times' retail price index for Greater Bombay shows a fall for February of 0.9 per cent at 202.1 per cent and remained the same at 202.1 at the end of March. In both months, retail prices of all food items (except cereals, pulses and edible oils) registered declines. The general index for non–food items showed an increase of 0.3 per cent in February, while in March pan declined by 7 per cent and clothing by 1.8 per cent, while education and recreation rose by 2.2 per cent. There are elements which are exerting an upward pressure on prices. The RBI 1978 January Bulletin reports that though prices of manufactured products, fuel, power, light, lubricants fell during the quarter of November 1977 to January 1978, prices of primary articles, wheat, bajra, pulses, milk and milk products increased considerably—pulses by 4.8 per cent due to stagnant production, wheat by 7 per cent due to lower market arrivals, bajra by 9.4 per cent due to fall in output. While the price of major oil seeds except groundnut fell by 26.1 per cent, ground–nut prices rose. Sugar, *khandsari* and gur fell due to larger release while textile prices rose. Second the Union government announced in April the sixth instalment of dearness allowances to its employees after having failed to pursuade them to accept the payment in national development bonds. Third the effect of the increased excise and other levies in the budget on the prices of aluminium, paper, textiles, engineering goods, soaps, detergents and coal are still awaited and there is the possibility that it may result in a 6.8 per cent rise in their prices. Fourth lending rates of commercial banks have been reduced from 0.5 to 1.5 per cent and in some cases below even the minimum lending rate of 12.5 per cent. This follows the RBI directive in early March that banks with deposits above Rs. 25 crores must bring down their rates from 16.5 per cent to about 15 per cent and for banks with less than Rs. 25 crores deposits there must be similar cut backs to 16 per cent. For rates which are 13.54 to 15 per cent, the reduction should average 1 per cent, rates above 12.5 per cent should be brought down to that level and the rates at that level should be further brought down. This will pump more funds into circulation via the commercial sector, though the cut in high lending rates is overdue. On the other hand? steps are also being taken to contain the upward trend. The Union government is expanding the public distribution system bringing in vanas–pathi, ghee, edible oils and later tea,

dal, salt, and manufactured goods into the system. The new drug *policy* announced in the Lok Sabha at the end of March will also impose price control on all bulk drugs and in the production of price controlled formulations. Also towards the end of April, RBI announced its gold sales scheme starting May 3 for a 3 month period at fortnightly intervals, at which the 9,948 licensed gold dealers (the largest numbers are in *Tamil Nadu*, 2,700) can enter their tenders. The purpose of the scheme is to bringdown the internal price of gold to the level of the international price and so discourage smuggling. It will also help to cover the uncovered budget deficit of Rs. 1,050 crores (see last issue p. 205) and to that extent will be an anti-inflationary measure.

Economy and Industry: The currency and finance report of RBI for 1976-77 states that domestic saving increased fractionally from 15.3 per cent in 1975-76 to 15.7 per cent in 1976-77, but the aggregate investment in the country's economy declined from 16.1 per cent in 1975-76 to 14.3 per cent in 1976-77. Out of this budgetary allocations accounted for 8 per cent (up from 7.3 per cent in 1975-76), the capital formation of the Union budget having increased by Rs. 177 crores to Rs. 1,127 crores and through its financial aid to the States a further increase of Rs. 504 crores. The trends in investment in the private corporate sector showed an increase except for retained profits which declined from Rs. 175 crores to Rs. 20 crores. The report also shows that the growth rate of the industrial output of the country during the first 10 months of 1977 fell to 8.3 per cent compared to 10.2 per cent for the same period in 1976. *The setback is attributed to* inadequate power supply, and disturbed *industrial relations. What is even more* important in the RBI analysis is that in important areas of the industrial sector the possibility of further growth is limited because of the trends in capacity utilisation, so that additional investments are needed to expand production. For the economy as a whole, the agricultural sector registering a very high *7 per cent growth this year, this year's* economic outlook is encouraging. This is also reported by ESCAP in its annual *report of the region for 1977* which refers to the good performance of the Indian economy in 1977, its capability for sustaining a high growth rate even during the worst and most prolonged recession experienced by the world *economy since 1937. It also refers to* the priority given by the government to agriculture and rural development and to its pronounced labour intensive and anti-poverty focus strategy. It refers to the 4 per cent average annual rate of growth in the last 4 years, which was above the trend rate of 3.5 per cent in the first four five year plans. However it notes that much needs to be done to change the existing institutional and organisational framework in the rural areas if the new policies are to succeed, *particularly in land reform* to enable the weaker sections to participate in the tasks of development. For this the growing participation of private voluntary organisations in rural development is encouraging. While Industrial growth in general has been rather poor, as reported by RBI, the small Industries Development Organisation reports that in 1977 the small sector registered a 13 per cent growth with a total production of Rs. 7,570 crores (against Rs. 6,700 crores in 1976). With the *base as 1970*, the production index rose

from 183.98 in 1975 to 228.82 in 1977 and the number of small units rose from 2.47 lakhs in 1976 to 2.69 lakhs in 1977. Large industries (71 out of 200 addressed) as well as states have set up ancillaries. Continuing the report on the slackening of growth of large firms, the Economic Times Survey for 1976-77 reports that the growth rate of the top 101 firms in the corporate sector slackened, their total capital expanding by 8 per cent compared to the previous year's 12.4 per cent, and their gross fixed assets increasing by 8.8 per cent compared to 11.3 per cent in the previous year. The rate of growth of inventories fell from 9.1 to 1.5 per cent. Their sales turnover, however, expanded by 14.5 per cent and profits by 11.6 per cent. To spur industrial growth, the Union government accepted the recommendations of the Ramakrishna study group to raise the exemption limit for industrial licensing from the present level of Rs. 1 crore to Rs. 3 crores and to delete the overall Rs. 5 crores ceiling on investment, while not accepting its recommendation of dropping the existing list of delicensed industries announced in 1975 and 1976. In the context of industrial revival and growth, the priorities for industrial credit announced by the government in late April, directing financial institutions and banks to give preference to 23 industries led by fertilisers, cement, sugar, drugs and power will be of importance. Also term loans have been ruled out for 13 industries including passenger cars, air-conditioners, refrigerators, TV sets, toiletry and cosmetics, alchoholic drinks, soft drinks and cigarettes. Also adequate finance is provided to rural and village industries and rural projects. In ragard to the new industrial policy announced in August 1977 (see Vol. VII p. 581), there is little change in the foreign collaboration policy despite its declaration that it will be selective, restrictive in remittance of profits and royalties, will ensure that majority interest in ownership and control to be Indian, FERA is to be strictly enforced technological self-reliance being the objective. The policy however recognised the need for continued inflow of technology, foreign control is still possible, the costs—direct in the form of profits and royalties and indirect in the form of output restrictions and access to inputs and market—are high, as RBI surveys have shown. Also foreign control is ensured not by ownership but through control over technology and the export orientation which is not an important objective for the country is not met by foreign firms or their technology. Above all foreign technology is usually inappropriate technology, producing products suited to high income countries. Hence to make this part of the new industrial policy effective what is needed is a carefully designed and administered machinery for selecting, screening, evaluating and monitoring foreign technology. On performance of the public sector, the units in the Department of Heavy Industry produced to the value of Rs. 900 crores against the target of Rs. 1,000 in 1977-78. Besides improved physical performance, they progressed during the year in self-reliance, import substitutions and technology absorption within the limits referred to earliar. The ministry reports that out of 250 industrial applications pending at the start of 1977, 245 applications were cleared during the year (94 per cent), 1,500 new applications were received of which 1,063 were disposed and 426 returned to correct errors. During 1977, 112 out of 113 foreign collaborator applications were cleared and out of 427 new applications

414 were diposed. The main areas of foreign collaboration approved during the year were: Industrial machinery (74), electrical equipment (67), chemicals (23) and transportation (18). One of the public sector units, HEC reports that against an average output of Rs. 4 crores during December–February the March output was Rs. 8.70 crores. This doubling of production took place despite uncertain power supply and breakdown of some vital equipment and other factors. But for 1977–78 the total production of Rs. 48.44 crores was less than 50 per cent of the annual target of Rs. 104 crores. For 1978-79 the target had been fixed at Rs. 109 crores and the perspective plan for the next 5 years envisages an additional turnover of Rs. 25 crores with a view to wiping out the accumulated losses. HMT also has not done too well. Against the 1977–78 target of Rs. 120 crores including machine tools of Rs. 55 crores, production reported is Rs. 110 crores including Rs. 43 crores in machine tools. Its net profit is Rs. 5 crores against Rs. 8 crores in 1976–77.

National Production Front:

Steel: *Steel production for* 1977–78 was a record of 8.04 million tonnes of saleable steel, 180,000 tonnes higher than 1976–77. In terms of crude steel, the output was 9.93 million tonnes. Sales exceeded production during the year, so that carryover stocks were reduced by 560,000 tonnes, the stocks with the main steel plants coming down to 1.04 *million tonnes. On April 1, 1978* (from 1.60 million tonnes a year ago). Thus after 3 years of recession, domestic sales picked up by 12 per cent during the year compared to sales in 1976–77. The integrated steel plants produced 6.37 million tonnes (against the previous year's 5.70 million tonnes) of which the SAIL plants produced 4.46 million tonnes (against their previous year's 3.88 million tonnes). Exports *declined from* 1.04 *million tonnes* in 1976–77 to 939,000 tonnes because of the higher domestic offtake. The steel mills supplied more than 862,000 tonnes of pig iron to the Small Industries Corporation in the States. Bhilai and Durgapur and the Alloy steel plant at Durgapur produced the largest amount of ingots during the year and TISCO and Rourkela the highes toutput of saleable steels. The total production of ingot steel from the 6 main plants at 8.42 million tonnes was the same as in 1976–77. But there was a fall from 6.92 to 6.89 million tonnes in the production of saleable steel, due mainly to power restriction. Bokaro's loss alone on this account was 103,000 tonnes, the Bhadravati plant lost 32,000 tonnes, Durgapur 30,000 and the others 29,000. Efforts are under way to improve the productivity of plants by updating technology. IISCO reports a *large loss* of Rs. 31.29 crores and the other public sector companies and estimated loss of Rs. 13.56 crores. While losses in the other plants are due to the power cuts, IISCO's losses are due to lower price paid by Indian Railways as noted in Vol. VII p. 629. Steps are under way to maximise the production in Durgapur's wheels and axle plant and for diversifying its production, modernising its iron and steel making facilities and setting up a switching plant. To improve manage*ment and co-ordination*, the government shares in IISCO are being transferred to SAIL. Also to lighten its burden, financial assistance is being given to IISCO for capital schemes for 3 years from

1977–78 in the form of equity and a 3 year moratorium on interest payment on the current year's loans from government given to meet cash losses.

Crude: In 1977–78, 14.1 million tonnes of crude were imported at a cost of Rs. 1,170.58 crores (5.9 million tonnes from Iran, 3.1 million from Iraq, 4.1 million from Saudi Arabia, 0.9 million from UAE and 0.1 million from Egypt). For 1978–79 the government estimates that the country's demand will be 27 million tonnes, against which 15 million tonnes will be imported. The government has begun an active programme of oil and gas exploration in the sedimentary basins both onshore and offshore. It estimates that 2/3 of the country's petroleum resources are in offshore areas and so the reconnaissance seismic surveys of the entire continental shelf within a water depth of 200 metres is being completed in 1978–79 by the ONGC ship Anweshak. The total production of crude during 1977 was 10.15 million tonnes, an increase of 1.5 million tonnes over 1976 (7 million tonnes produced by ONGC, 3.12 million tonnes by Oil India, 50,000 by AOC). In 1978–79 the domestic crude production is expected to be 12.70 million tonnes. The production potential of crude production in Bombay High may exceed 20 million tonnes a year as against the previous estimate of 12–13 million tonnes because of the 2 new oil structures *recently discovered* and the discovery of an important gas field at Tapti. Despite the Planning Commission's proposal to reduce the maximum production of offshore crude to 9 million tonnes in order to conserve the oil and make it last longer against future rise in international prices, ONGC is organising itself to handle production of 20 million tonnes per annum at Bombay High in the future and the capacity of the pipe line it is laying corresponds to this potential. This is supported by the studies of the Institute of Petroleum Exploration which places the total *recoverable crude reserves* from offshore basins at 1 billion tonnes and the recoverable reserves of gas at 3 billion tonnes of oil equivalent of gas. In this connection the large task of laying the largest sub-sea pipe line covering 420 KM has been accomplished in record time by early April. Having completed 3 separate lines for transportation of crude and gas from the offshore areas to Uran now a major thrust is under way to provide feeder lines which is expected to be completed by the end of May. A series of offshore explorations are under way. Discovery III chartered from the US by ONGC started drilling the first exploratory offshore oil well from mid April, 50 miles north of Cochin. ONGC will also *start drilling in the other offshore structures* of Kerala which had earlier been surveyed by Anweshak. Rio Das Contas, a seismic survey ship, chartered by Oil India Ltd. is undertaking surveys in the Mahanadi delta offshore basin in the Bay of Bengal, based on the earlier aeromagnetic surveys conducted by the NGRI. Also plans are being finalised to undertake *drilling in the* Cauvery and Andamans regions, despite the failure of the first exploratory well drilled by the Canadian firm Asmara because an onshore well drilled in the Pondicherry-Karaikal areas showed the presence of oil. On the takeover of oil India, the committee to recommend the compensation payment to BOC for the takeover of its shares is *facing problems* with regard due to the takeover of Assam Oil, the fully owned subsidiary of BOC. Assam Oil is in arrears to government on account of various tax liabilities to the

extent of Rs. 8 crores and this will have to be deducted from the total compensation payable to BOC which will mean a net compensation payment of Rs. 16 crores and from it the dues payable by ADC will have to be deducted, leaving a sum of Rs. 8 crores to be paid.

Coal: Production of coal during 1977-78 is estimated at 101 million tonnes, the production during the first 11 months, April–February, having attained 90.9 million tonnes. On March 1, the pithead stocks were 11.7 million tonnes, and increase of 2 million tonnes in 2 months, including CIL pithead stocks at 10 million tonnes. CIL also reports that steel plants hold at the end of March 4.15 lakh tonnes of coal against 3 lakh tonnes in early March. The problem of wagon availability is still being raised, against 10,500 wagons that are needed daily, only 8,500 wagons are said to be available, resulting in pockets of scarcity, particularly for small consumers. Once more the need for close coordination between the Department of Coal and the Railway Board is stressed to end this problem. From this point of view it is to be urged that there will be an effective result flowing from the inter ministerial committee comprising representatives from railways, state electricity boards and the department of coal which is monitoring coal stocks with thermal plants. One of its first acts has been to rush coal to the thermal stations. Another priority is railways which has to move priority items like foodgrains, fertilisers and chemicals. After this comes the coal dumping plan for cement plants. Washed coal production has remained stable during 1976–77 and 1977–78 at 87 lakhs against the target of 93 lakh tonnes, due mainly to industrial unrest. The production capacity of coal washeries of CIL is increasing by 45 lakh tonnes during the coming 3 years to meet fully the requirements of the public sector plants. For all washeries together by 1980–81 the total production capacity will be 138 lakh tonnes. The coal companies face the problem of the 5 per cent excise in coal (see last issue p. 206), which will total Rs. 7.5 crores and to cover this additional charge, the companies have asked for a government subsidy. If the government rejects the request, as they should, the companies will pass the burden on to consumers (making the deficit position of the thermal electricity plants even worse), the companies having to pay the tax on the 11.7 million tonnes of pithead stocks and 3.4 million tonnes coal given gratis to the employees. The Planning Commission working group on coal has recommended an investment of Rs. 2,094.23 crores during 1978–83, including Rs. 509.85 crores for new mines, which will result in a maximum production of about 120 million tonnes.

Aluminium, Copper ore and Zinc: Aluminium production in the country faces two problems. First is the long standing problem of prices. The impact of the budget proposals on the aluminium industry is estimated to be increase of between Rs. 1,000 to Rs. 1,500 per tonne for both levy and non-levy metal. Pending government decision, the industry has to absorb large losses for four months till July. The present prices are said to be below the costs of production of the metal against which the government, a year and a half back, referred the case to the Bureau of Industrial Costs and Prices which submitted its recommendations in December 1976 and which has been sent back by the government to the Bureau for revision

while the 1976 recommendation assumed that the power situation will become normal, in actual fact powercuts have continued and worsened disrupting the work of Indalco, Hindalco, Balco and Malco. The Union government has decided to increase the royalty given to the States—Bihar, Rajasthan, Karnataka, Madhya Pradesh, Goa and Orissa—to the extent of Rs. 6.50 crores. In zinc, the country has reached near self-sufficiency, with the production capacity having touched 90,000 tonnes-75,000 tonnes in the public sector and 15,000 tonnes in the private. The current demand for Zinc is 1 lakh tonnes and for next year it is estimated to be 1.22 lakh tonnes. The next priority is to expand the production of lead to reach the fuel capacity of 30,000-35,000 tonnes of the metal from the Zawar, Rajpura, Dariba, AP and Gujarat mines. Even the then indigeneous mines production will be about 50 per cent of the domestic requirement.

Sugar and Cement: Sugarcane production in 1977-78 is 11 million tonnes more than the production in the previous year, of which 6.5 million tonnes are used by the mills and 4.5 million tonnes by *khandsari* units. As a result cane prices have fallen and the government has announced some relief measures such as excise relief upto February 5, Rs. 332 crores of cane was purchased against which Rs. 251.6 crores have been paid to the farmers, leaving Rs. 80.4 crores (24 per cent) as balance. Official agencies have had to enter into the *khandsari* market in Tamil Nadu, Andhra Pradesh, Haryana and Uttar Pradesh to prevent a steep fall in its price and reduced payments to cane growers. In the long run however there is need for crop planning to stabilise the price of cane, sugar and *khandsari*. Of the all India total of 1.8 per cent of all farming land under sugarcane, in UP it is 6.5 per cent, with West UP growing cane in 20 per cent of its land and Muzzafarnagar 50 per cent. Generally where cane is grown in more than 10 per cent of the land, cane growers find it difficult to market their produce. The government has proposed that farmers should ensure that not more than 12.5 per cent of land is devoted to growing cane. The government has also decided to export 6.5 lakh tonnes of sugar under the International Sugar Agreement and because the international price is 9.2 cents per ounce against the minimum in the agreement of 11 cents, the government will be subsidising the export to the tune of Rs. 30 crores, a loss of Rs. 500 per tonne exported. In this context, it is necessary for productivity of both cane growing and the mills to be raised. While in the southern states the yield is between 70 to 100 tonnes per hectare with 12.5 to 13.5 per cent sugar content, in UP and Bihar it is 38-40 tonnes with sugar content of 12-12.5 per cent. The use of the R and D services of the sugarcane and sugar institutes at Coimbatore, Lucknow, and Kanpur can increase yield and sucrose content and improve mill extraction. For the future, the Sugar Development Council has recommended an outlay of Rs. 770 crores for the Sixth Plan to increase sugar production to 68 lakh tonnes by 1982-83, 58 lakh tonnes to meet domestic demand and 10 lakh tonnes for exports and buffer stocks. 89.5 lakh tonnes of *khandsari* would also be in demand. To meet this demand for 68 lakh tonnes of sugar plus 89.5 lakh tonnes of *Khandsari*, sugarcane production will have to be expanded to 1,850 lakh tonnes. The outlay proposed includes Rs. 660 crores for additional capacity and Rs. 110 crores for modernisation. On the cement front, the 1977-

78 production is estimated at 19.20 million tonnes involving a capacity use of 88 per cent against a demand of 22 million tonnes. The present installed capacity is 21.87 million tonnes and an additional capacity of 15.6 million tonnes has been granted under industrial licenses and letter of intent. In the Sixth Plan, 11 million tonnes of new cement production capacity is expected to be created, bringing the capacity to 33 million tonnes, which means a production of 30 million tonnes. This may be an under estimate given the priority in the Plan for irrigation and power development and the pick up in construction which is expected.

Textiles, Tyres & Tubes and Wagons: The government has decided that there will be no expansion of weaving capacity allowed in the organised mill and power loom sectors except for exports during the Sixth Plan. Selective modernisations will be permitted for maintaining exports and additional production is to be achieved through better utilisation of existing capacity. In this manner, the mill sector will produce an additional 400 million metres and power loom sector another 1000 million metres by 1983–84. The handloom sector will produce an additional 1,400 million metres from the present 2,300 million metres to 3,700 million metres by 1983. The Sixth Plan textile expansion will involve an investment of Rs. 183 crores in the weaving sector. Priority in expansion of spindleage will be given to existing units to reach economic levels of production. Also the government is planning to overhaul the export incentive scheme for cotton textiles because of the many questions about it. With regard to the tyre and tube production, in order to meet the higher level of investments to meet or sustain their current level of turnover, the tyre manufacturers have raised the price of all types of automobile tyres and tubes by 10 to 12 per cent from the end of March, in addition to the increase of 6 per cent in January. This means that truck tyres will cost Rs. 150 to Rs. 200 more and passenger vehicle tyres Rs. 15–20 more. In regard to the wagon industry, the Planning Commission has pegged the 1978–79 offtake to 8,500 wagons and with export outlook sloping, there is the danger that 65 per cent of the plants—Taxmaco, Braithwalte and Burn Standard in West Bengal and CIMMCO of Rajasthan will be meeting conventional restricted orders from the railway, with the other related items like wheel set, coupler etc. taking up the rest. This situation must be averted and internal and external demand pushed forward rather speedily to prevent the industry declining in the Sixth Plan.

Agricultural Production: On the basis of the sound record of rabi crop reported in earlier issues of the Bulletin (see for eg. last issue pp. 216 and 217), foodgrains production in the current year is expected to touch atleast 125 million tonnes, which is 14 million tonnes over the previous year's production (10–12 per cent). The Economic Survey forecast was an output of 121 million tonnes. But the good kharif harvest which is above the record 74 million tonnes and the rabi crop which is likely to be 32 million tonnes (3 million tonnes more than the previous year) account for this 14 million tonnes increase over 1976–77. Behind this record production are some significant factors which may make a difference to our agricultural future. Fertilisers consumption increased this season by 26 per

cent; irrigated areas increased as did the areas under HYV seeds and there was a general improvement in farm practices. Punjab and Haryana have contributed a record 10 million tonnes of wheat to the rabi output. It would have been higher but for the hailstorm and rains in April in Haryana over 2.66 lakh hectares leading to the loss of Rs. 30 crores worth of standing crops. Even so Haryana's production is estimated at 28 lakh tonnes (1 lakh more than the previous year) and the Punjab production above the previous year's good 62 lakh tonnes. Government agencies in the two States are getting ready to procure 45 lakh tonnes. So too in UP and other wheat growing states, the procurement operations have started. In addition to wheat, increases are also marked in rice, jowar, oil seeds, cotton, potato, tobacco and sugarcane. Rice production is expected to reach 50 million tonnes (in Punjab the rice production increase was 43 per cent) there are two problems now facing the bumper rabi crop. First prices, wherein with the flow of wheat into the markets in Punjab, Haryana, Uttar Pradesh, Madhya Pradesh and Maharashtra, prices began to fall from about mid March, which is also due to the functioning of fair price shops. In this situation the Agricultural Prices Commission recommended that there should be no change in the wheat procurement price at Rs. 110 per quintal for this year. It also recommended a procurement target of 6 million tonnes (3.5 million from Punjab, 1.2 million from Uttar Pradesh and 1 million from Haryana). The wheat growing states have been pushing for an increase in the procurement price. The government announced on April 12 a small increase in the procurement price from Rs. 100 to Rs. 112.50 per quintal, giving as the reason for this increase the need to maintain the incentive for securing increasing production of wheat. The issue price of wheat will, however, be maintained at Rs. 125 per quintal. In order to avoid an additional subsidy from the Union government, because of the rise in the procurement prices with no increase in issue price, the government is trying to persuade the wheat surplus states to effect reductions in the procurement charges like *mandi* charges, sales tax etc. To enable esay open market availability for consumers as well as to help the farmers get a price higher than procurement prices, the government states that it is continuing the free movement of wheat throughout the country. The other problem is storage, where the bumper rabi crop involves creating an additional storage capacity has been created taking the total storage capacity to 20 million tonnes, so that additional storage capacity of 4 to 4.5 million tonnes needs to be made. The total foodgrains stock in April was 17 million tonnes and with the procurement of 4.5 million tonnes, at least 2 million tonnes of capacity is needed. Storage losses which seem to vary from 1 to 25 per cent and average around 5 per cent need to be reduced through improved storage practices. The problem of storage also arises from the fact that the offtake by the public distribution system has been low, instead of the usual 11 lakh tonnes per month it has varied between 5 to 7 lakh tonnes because of the open market availability. Also the Food for work programme has not picked up and the 13 states which will participate in it will be using 2 lakh tonnes this year. The output of pulses this year is estimated at 12.8 million tonnes, compared to the previous year's 11.2 million tonnes (an increase of 14 per cent). For 1978-79 the area under pulses

will be increased from 23 million hectares to 24.1 million hectares, with a target production of 14 million tonnes. Even so, the output is lower than the demand: the per capita daily consumption has fallen from 70 grammes in 1962–63 to 40 grammes in 1976–77. The area and output of pulses need to be quickly increased, through use of short duration crops, intercrops, catch crops and mixed crops. On improved farming practices in general, it is noted that some 15 to 40 per cent of irrigation water is lost in canal courses through seepage which is maximum in sandy areas. By using low cost material for lining water courses at least 20 per cent of the water cost can be saved and with improved designs in the irrigation systems and scientific application of water to crops, the loss can be eliminated and this extension service now should be provided to the farmers. Another reform needed is that suggested by the Indian Rice Development Council about land consolidation and discouraging of share cropping so that the benefit of irrigation can flow effectively to rice production and the farmer. This would also bring about an all round improvement in rice farming techeniques in use of simple implements for line sowing in direct seeded areas, adoption of an improved package of practices of including timely planting, timely release of water and control of pests and weeds.

Exports: The rate of increase of exports in 1977–78 is estimated at 9 per cent (against the 25 per cent increase in 1976–77), which is due to the growing protectionism in the industrialised countries and the continued recessionary situation there. Also the government deliberately cut back on exports of mass consumption items like sugar, rice, vegetables, vegetable oils and oil seeds, groundnut extractions, pulses and cement as a result of which the exports of these items for the first nine months of the year fell from Rs. 500 crores in 1976–77 to Rs. 125 crores in 1977–78. Both exports and re-exports grew at 8.9 per cent during the time, with significant increase in tea, coffee, tobacco, cashew kernal, spices and engineering goods. Engineering goods exports for the year will be Rs. 625–650 crores and civil contracts from abroad Rs. 325 crores. In April STC exported 50,000 tonnes of sugar. On the other hand readymade garments, leather, marine products, iron and steel, sugar, cement, raw cotton, vegetables show weakening export trends. Imports are increasing due to imports of edible oils, cotton and man-made fibres on a large scale, with increases also in chemicals, medicinal items, paper, plastics and fertilisers. As a result there is a net reduction in the terms of trade from 1976–77. The RBI survey on the country's balance of payments in the December 1977 Bulletin refers to the severe pressures faced by the country during 1973–74 to 1975–76 and the emergence of a viable external position by March 1976. With the quadrupling of petrol prices in 1974, the poor weather conditions leading to large imports of foodgrains and fertilisers resulted in an average import of Rs. 375 crores on these 3 items shooting up to Rs. 1,830 crores in the 3 years. Other items shrank to 30 per cent of all imports during the period. A special export drive led to increased exports (by 10 per cent) in 1975–76, increase from Rs. 1,818 crores in 1972–73 to Rs. 3,180 crores in 1974–75 and to Rs. 4,178 crores in 1975–76. The deficit on merchandise account which was Rs. 977 crores in 1974–75 declined to Rs. 567 crores in

1975–76, with buoyancy in receipts on invisibles. Also during this period there was larger net inflow of capital which had averaged Rs. 379 crores during the 3 years ending 1972–73 and increased to an average of Rs. 880 crores in the following 3 years. In order to push forward the country's foreign trade, the government has turned down the Alexander Committee's recommendation for a 3 year export–import policy, in order that the country's policy should be responsive to the fast changing world and domestic production and trade situation, while maintaining an essential element of continuity. Accordingly the import export policy for 1978–79 announced on April 3, simplified and decentralises licensing procedures and liberalises imports to subserve national priorities. It allows free import of items not banned, restricted or canalised, of which the banned items are 750 items, in addition to 140 items of capital goods which are also banned. The items for restricted imports are 500 and canalised items 65, in addition to petroleum products, fertilisers and drugs which are to be imported exclusively by the public sector agencies. The Marine Products Exports Development Authority has developed a package of policies which will develop the marine products industry and exports. Marine exports earnings in 1977–78 was Rs. 200 crores and the target for 1978–79 is Rs. 250 crores. Frozen shrimps exports which constitute 90 per cent of all marine products exports, declined from Rs. 16,065 lakhs in 1976 to Rs. 15,622 in 1977 and given the growing external demand, its production needs to be stepped up. The iron ore mining industry faces a decline in export prospects this year, as exports to Japan which were 16.34 million tonnes in 1977–78 will remain the same for this year, and so MMTC has to look for other markets to sell its growing stocks and products of additional mines that have been commissioned. The garment export quotas are encouraging; for the US 63.35 lakh pieces are available on a first-come-first-served basis as on April 15, 1978. The position in EEC countries has also shown similar improvement. As noted earlier, engineering exports for 1977–78 are estimated at Rs. 625 crores and the target for 1978–79 is to be Rs. 730 to Rs. 775 crores. A team is visiting Eastern Europe which imported goods worth Rs. 44.71 crores in 1976–77 to expand the exports to this area. At the end of March, the government announced the resumption of onion exports and the first shipment was permitted of 20,000 tonnes. Jute exports have done well and are likely to have increased by 10 to 15 per cent both in quantity and value in 1977–78, earning Rs. 210 to Rs. 220 crores compared to Rs. 193 crores in the previous year. During March and April trade agreements have been signed between Indian and USSR., India and Iran, India and Syria and India and Sweden (which may in part compensate for the restrictions on cotton textiles imposed by Canada). At long last India and USSR have reached agreement at the end of March on the rupee–rouble exchange rate, under which Rs. 10 will be equal to one rouble and will be applied to past debts as well as for current transactions. The ratio will be in force until reviewed by the 2 governments again. As a result of the increase in the exchange value of the Rupee, IMF returned in early March Rs. 2.90 crores to India. On the other hand the budget provides for Rs. 211 crores to be paid by India to IMF to meet the increase in the country's quota from SDR 940 million to SDR 1,145

million. The Lok Sabha passed legislation in March empowering RBI to *increase and utilise the country's growing* foreign exchange reserves to the best advantage, including the opening of gold *accounts abroad, investing in foreign* accounts and granting loan in foreign currencies to scheduled banks. For the *future, the Sixth Plan forecasts a 7 per* cent increase in export growth during the Sixth Plan alongside of a liberal import *policy as noted earlier. The total import* requirement during the Plan period will be Rs. 42,823 crores and exports Rs. 34,000 *crores, which is a good base* for the growth and development of the economy. Foreign remittances into India reached Rs. 233.09 *crores in* March. During 1977, Rs. 1,900 crores have come into the country causing some anxiety as to its inflationary effect on consumer durables, land etc. on which studies are needed.

Aid: In March, India and the World Bank's IDA *reached agreement* for the grant of $ 126 million IDA credit for the 15 year old scheme for using waters of *the Krishna river to irrigate the drought-*prone areas of Bijapur and Gulbarga. In March, Japan committed another 9.7 billion yen for *projects, taking its total* assistance to 29.7 billion yen (Rs. 106 07 crores), in 1977-78. In April, West Germany singed an agreement to grant India a commodity loan of Rs. 28 crores for the import of industrial equipment, spare parts and accessories. The World Bank has agreed in April to grant a loan of $ 105 million to Tatas for the construction of a 500 MW thermal plant at Trombay and a loan of $ 200 million for the super thermal power plant at Korba. Denmark has approved in March a $ 9 million aid to India. UK has agreed to subsidise the purchase of 6 ships by the **Shipping** Corporation with a grant of $ 11.64 million and a grant £ 50 million for the development of coal industry. EEC agreed in March to participate in a $ 540 million dairy development project providing India 31,000 tonnes of skimmed milk powder and 12,700 tonnes of butter an year for six years.

International

Pakistan: In April, as a result of over 2 years of intensive negotiations, India and Pakistan signed an agreement on the design of the Salal hydro-electric project specifying the height of the spill outlay gate, the dead storage level and consultation in times of emergency. India is entering into negotiations with Pakistan on the sharing of its technology and has approved assistance in setting up small scale industries. Negotiations were also under way in April on the price for the export of 2 million tonnes of wheat to Pakistan.

Bangladesh: India and Bangladesh agreed in April to review *the inland* water transport agreement between the 2 countries while broadening its scope and the development *of the inland water* transport between the 2 countries. Also in March the seventh round of discussions was held between *the 2 countries* regarding the Indo-Bangladesh maritime boundary which has importance because *of the presence of oil* in the offshore areas. Schemes for augmenting the flow of Ganga waters as envisaged in the *Farakka agreement* (see Vol VII p 698), were discussed in March between the two countries. India's proposals include construction of a 320 km canal linking the Brahmaputra and the Ganga along with 2 storage dams and a

barrage. Bangladesh has proposed building of reservoirs in the upper reaches of the Ganga.

Nepal: India and Nepal signed an agreement in April under which India will make a grant of Rs. 40 crores to Nepal for a hydro electric project to meet the power needs of the Kathmandu valley. Another power project at Karnal is also under discussion.

China: In April, a Chinese cultural delegation visited India and established cultural contacts with the cultural organisations in the country. As a result of Chinese admission to the UPU Parcel Post Agreement, India and China will be resuming the parcel post service between the 2 countries. This will also help parcel post service with Vietnam and North Korea.

Afghanistan: India and Afghanistan concluded an agreement in March under which India will give Afghanistan an interest free commodity loan of 50,000 tonnes of wheat to help that country tide over its present wheat shortage. Indo-Afghanistan co-operation is to be developed in thermal power generation, industrial estates, machine tool industries and deep tube wells in Afghanistan.

World Monetary Refrom: Members of IMF have given the Fund wide new powers over exchange rate practices, abolishing the official price of gold and an increase in the use of SDRs. With the ratification of the second amendments the fund's articles of agreement, the change became official in early April. Now that the official price of gold has been abolished by the IMF sales of gold, the Fund hopes that their sales will not have any impact in the international monetary system. On the scope of SDRs as reserve asset, there is the unsettled question as to whether an aid receiving country can refuse to accept the aid in SDRs and receive repayments in SDRs. This will have to be worked out by the World Bank. In early April, IMF included the currencies of Saudi Arabia and Iran in the internal make up of SDRs, a change which reflected the enhanced position of Saudi Arabia and Iran in the world's economy of their oil producing wealth. The Fund also has now the authority to invest a part of the profits it has made from gold sales in income producing and marketable areas. The second amendment empowers IMF to set up a Council of governors, ministers and others for improving the organisational aspects of the Fund. The major changes are in respect of exchange arrangements and surveillance by the Fund and expansion in the uses of SDRs. The amendment gives members freedom of choice in their exchange arrangements but they are all bound by certain obligations and subject to surveillance by the Fund. In March, West Germany and US undertook a major co-operative effort to support the dollar which had been falling for months. The Plan allowed for billions of dollars of cash to be made available so that the dollar can be bought back on the markets if the dollar continues to fall. West Germany has given $ 4 billion to the US for this purpose and the US Treasury made arrangements for the sale of credits worth $ 70 million to the West German Central Bank to purchase Deutsch marks to intervene in markets and buy dollars. By March, Nepal devalued its currency against the Indian rupee by 4.3 per cent and Turkey its currency by 10 per cent against the US dollar.

World Debt and Commodity Fund: The UNCTAD at its meeting in March in Geneva arrived at an understanding on the question of the problem of $ 250 billion debt that the developing countries owe at the end of 1977 to the industrialised countries. In the formula fashioned at the meeting, the developing countries dropped their demand for an immediate and generalised lowering of the debt burden and agreed to the principle of the problem being treated on a case by case basis. The industrialised countries on their part will adopt measures such as backdating change in outstanding loan terms which will result in some countries such as Britain and West Germany cancelling the debts. This is an important break through in the world debt issue. The Commonwealth Ministerial Conference in April in London on the financing of commodity buffers to stabilise their prices, on the other hand, did not reach agreement. Most of the industrialised commonwealth countries were not ready to make commitments to the Fund. The only positive result was the conference accepting the common Fund being used for other measures known as the second window to help the developing countries.

World Economy: A World Bank study states that the developing countries have demonstrated improved capacity for economic management in their adjustment to radiply changing world economic conditions since the early '70s. They have not only maintained their growth, they have avoided deeper recession and further contraction of world trade than what actually took place in 1974-'75. Though growth and external payments were not favourable to the countries in 1974-'76, the larger countries improved their output in agriculture, industry and exports. The average rate of annual growth in the real output for 1974-76 for the countries is estimated at 3.3 per cent to 3.6 per cent. A parallel UN study reports wide disparities between per household incomes of the poor and the rich in both industrialised and developing countries. 25 countries at various levels of development had unequal distribution of income, the lowest 40 per cent households receiving less than 12 per cent of total income. In 20 other countries the lowest income group receives 12-17 per cent and in the remaining 21 countries studied, the share was about 17 per cent. In the first group (industrialised) of countries, the top 20 per cent received 50-70, in the next 20 countries it was 45-50 and in the last 21 countries it was 40 per cent. In the communist countries there was more equal distribution of income—the lowest 40 per cent of households receiving 25 per cent of national income and the top 20 receiving 33 per cent. In the Western countries there was low inequality—the bottom 40 per cent receiving 16, and the top 20 receiving 45 per cent of total income. In the developing countries there was a high degree of income inequality - the lowest groug receiving 12.5 per cent and the top 20 per cent over 60 per cent of the total income and the richest 5 per cent of households having 25 to 35 per cent of the total income. The study also shows a close, correlation between income concentration and social power. The Asian Development Bank's review contains a warning that world economic prospects for 1978 are less promising than in the past 2 years and forecasts more problems for developing countries unless the industrialised countries sustained better growth rates and imposed less trade restrictions. This warning is

sounded in the context of the report that the developing countries of Asia performed well economically.

World Trade: GATT reports that the value of world trade in 1977 was $ 1,150 million, which was a 13 per cent increase, while the volume increased only by 4 per cent due to levelling off of trade in the second half of the year. Export prices of petroleum rose by 10 per cent, coffee and cocoa by 55 per cent and 80 per cent, with a 10 per cent fall in grain prices. The industrial countries economic activity rose slowly in 1977, the decline falling from 5.5 per cent in 1976 to 3.5 in 1977. Due to the decline in domestic demand, their imports rose by 4–5 per cent and their exports by 4-5 per cent, which was half the 1976 rate. The oil marketing developing countries' exports rose by 11 per cent, their imports by 22 per cent, but their combined trade surplus declined only from $ 64 billion in 1976 to $ 60 billion in 1977. For non-oil producing and developing countries exports rose by one fifth in 1977 and their imports rose by 13 per cent, involving a trade deficit of $ 20 billion ($ 27 billion in 1976). For 1978 a modest increase in world trade is forecast because the declaration of world trade in the second half of 1977 is only slowly turning the corner and because also of the rising protectionist trends. There is also the further difficulty of assessing the effect on world trade of the effects of the recent changes in exchange rates.

UN Conferance on Law of Sea: The UN Conference on the law of the sea recommenced in March in Geneva with 150 participating nations. The conference has made progress as regards freedom of navigation, scientific research, settling disputes and controlling pollution. The issues to be decided are how the riches of the continental shelves of the industrialised countries and the deep middle oceans can be shared with the developing countries. Both rich and poor countries are agreed on the setting up an International Seabed Authority to oversee mining. The developing countries want the Authority to do the mining, the industrialised countries want it to be a licensing agency only. Gradually the idea of a parallel system has emerged in which international consortia will be allowed to mine using new testing techniques, and in time transfer the technology to the Authority for mining. The group of 77, the US and its allies, and the East European Countries have each prepared their positions and it is to be hoped that this conference will lead to a final agreed operational text.

World Food and Sugar: FAO's survey reports that in 1978 there will be a rise in world output of wheat and grains and the large cereal reserves will serve as a buffer. It also refers to its early warning system which warns that food shortages due to poor crops in 1977 will occur in West Africa and South Asia. Its tentative estimate for wheat and coarse grain production in 1978 is 1,120 million tonnes (which is a 5 per cent larger wheat crop of 405 million tonnes and 1 per cent more coarse grains at 715 million tonnes), with the cereal reserve at 176 million tonnes (which should be compared to 160 million tonnes reserve in 1977). Both FAO and the US Department of Commerce refer to potential problem areas due to weather in the USSR, Eastern Europe and China which might lower the actual production from the forecast. The FAO also points out

that India is among 45 seriously affected countries where food production per person decreased by 0.4 per cent during 1970–76, the others being Bangladesh, Egypt, Ethiopia and Kenya. While food production per person increased by 1.4 per cent in industrialised countries, it increased only by 0.3 per cent in the developing countries. While there is enough food in the world to feed everybody, inadequate food distribution increased the world's hungry by 14 per cent since 1970. The number of undernourished people in the world increased from 400 million in 1970 to 455 million in 1974. World sugar estimates are placed at 4.7 million tonnes raw value for 1977–78 and 90.62 million tonnes of sugar, raising the world surplus due to increased production in Brazil, India and eventually in the EEC countries.

Asian Rural Development: ESCAP will be issuing to its member countries guidelines on statistics for rural development. It is felt that a certain part of the development outlay in each country should be set apart for the provision of data relevant to the formulation, implementation, monitoring and evaluation of the development programmes. It is necessary to identify clearly the groups to be benefitted by rural development programmes, which is not easy for statisticians because of unresolved questions of definition and measurement. Also co-ordination among various local administrative agencies is essential to throw up relevant data for servicing the area-based integrated rural development programmes.

INMARSAT: In view of India's growing shipping interest, India has decided to join the International Maritime Satellite Organisation (INMARSAT). Based in London, the organisation's main purpose is to manage a world wide maritime satellite system which provides reliable quality and speedy maritime communications via the satellite and new services on high frequency. India played an active role in the last 2 years in bringing the organisation into existence. The last meeting of the organisation was held in Bombay in December with Malaysia, Sri Lanka, Australia, Britain and Canada participating and the next meeting will be in Penang to finalise the capital contributions from the participating countries. India will spend Rs. 10 crores, including Rs. 4 crores for creating the ground facilities for using the satellite which will begin operation in 1979.

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II Agricultural Development

Paddy and Other Production :

The samba harvest in Thanjavur was completed in April. As against the normal area of 6.80 lakh acres in the district, the total area harvested in this year was over 7.51 lakh acres. In the case of thaladi as against 3.90 lakh acres, about 3.36 lakh acres had been harvested in early April, while the kuruvai area declined from the normal 4.59 lakh acres to 3.92 lakh acres. Apart from the decline in area during kuruvai and thaladi, the samba yield was not satisfactory. It was 934 kg. per acre and for thaladi 900 kg. per acre. The State Civil Supplies Corporation has purchased 45,000 tonnes of paddy in the open market and 20,000 tonnes by way of levy. Heavy arrivals are reported in all paddy growing districts. In view of the bumper harvest this year, the State's requirement of 5.5 lakh tonnes till October next will be met. Prices are ranging at Rs. 50-53 per 57 kg. against the government rate of Rs. 51.30—54.16. The State government has asked the Union government to raise the procurement price of paddy to that of wheat-Rs. 110 per quintal, against the present price of Rs. 90 per quintal for coarse varieties and Rs. 95 for medium varieties. The State government announced that it will be introducing a crop insurance scheme with the help of the Union government, in accordance with the decisions of the meeting of the State and Union government representatives, under which the State must pay 25 per cent of the cost of the scheme. Details of the scheme are being worked out. The 1977-78 rice production of the State is 62 lakh tonnes as against 53 lakh tonnes in 1976-77, millets at 19 lakh tonnes and pulses 3 lakh tonnes. The government at the end of April announced that it is reviewing the restrictions on the movement of rice and paddy within the State. For 1978-79 the government has drawn up a comprehensive programme to produce 87.25 lakh tonnes of foodgrains, with rice at 64 lakhs, and pulses 3.25 lakhs. The area under oil seeds production is to be increased by 38,000 hectares and their production increased from 14.90 lakh tonnes to 15.70 lakh tonnes. There will be use of improved varieties of seeds and increased application of micro nutrients. The area under sugarcane will be increased by 1,000 hectares to reach 1.45 lakh hectares and productivity increased from 38 tonnes to 40 tonnes per acre through integrated pest control and optimum mineral dosage. In the Kanyakumari and Tirunelveli districts fruits and spices covering an area of 2,400 hectares and mandarin oranges in 250 hectares in Kodai-Palani hills are to be grown. Two elite banana gardens in Tiruchi and North Arcot are to be established at a cost of Rs. 16.95 lakhs.

Irrigation and Cotton :

The State government has prepared a massive plan for modernisation and better management of irrigation tanks at a cost of Rs. 111 crores for which World Bank aid has been requested. In this first stage, 500 tanks with an ayacut of 500 acres and more each are to be taken up, involving modernisation of delivery system in the ayacuts, standardisation of tanks, provision of on farm channels and adoption of improved cropping system. The area under the cotton crop is to be stepped up to achieve a production of 4.25 lakh

bales this year. The increase would be 10,000 hectares under irrigated conditions and 20,000 hectares under rainfed conditions.

Nilgiris Multi-Cropping Project :

The Indo-German Nilgiris Project started with the purpose of combatting the golden nematode and other diseases of the potato crop, after the eradication of which, the system of multi-cropping was introduced in replacement of the potato mono crop. Diversified vegetable growing started with the introduction of the new high yielding Kufri Jyothi followed by the high yielding September cabbage and zino carrot. Farmers made profits ranging from Rs. 5,000 to Rs. 8,000 per acre, the area increasing from 1,000 hectares in 1967 to 2,400 hectares in 1977. Cabbage is cultivated on 1,680 hectares. Marketing facilities eliminating the middleman were developed through the Nilgiris Vegetable Growers Association which transports the vegetables to Bombay, New Delhi, Mysore, Madras and Tiruchi. As usual the rich farmers have become richer and the lack of complete rapport between the government officials and project authorities has been a limitation. Now the collaboration with West Germany has ended and it is for the Department to take on this rather outstanding piece of crop development and diversification.

Farm Credit and Tractors :

The Land Development Banks report that some 50,000 small farmers owning lands distributed from surplus out of the ceiling have been granted long term credit. The Union government has sanctioned a second Regional Distribution Centre for this State, the first one being in Coimbatore. The Centre functions as a joint purchase body for the consumer co-operatives in the region. The Tamil Nadu State Co-operative Bank reports in April that it has cut the rates of interest on short term loans issued to small farmers for raising food crops from 12.60 per cent to 10.50 per cent. Following the withdrawal in the National Budget of the interest tax (see volume VIII p 206), co-operatives in the state reduced the rate of interest on all advances. According to the Bank, short term agricultural loans would be charged 12 per cent instead of 12.60 per cent, medium term loans 12.50 per cent instead of 13.80 per cent and jewel loans 15 per cent instead of 16 per cent. As a result of the study on Tractorisation by the Institute of Techno-Economic Studies (see last issue p 223), there are reviews by the government to increase the use of tractors in the State. The fear of unemployment being caused by the use of tractors has been laid to rest: in fact in addition to creating new employment, their utilisation increased the productivity of paddy lands by 11.6 per cent, 29 per cent for groundnut, 17 per cent for sugarcane and 34 per cent for cotton. These facts must be taken into account in the finalisation of the Sixth Plan, wherein the draft places heavy reliance on manual and bullock power.

Research Results :

Rainfed paddy research has yielded important results. In this State, out of 27.49 lakh hectares of paddy areas, 2.7 lakh acres are under rainfed cultivation, in Andhra Pradesh out of 35.53 lakh acres over 8 lakh acres are rainfed, in Karnataka 5.2 lakh acres are dry farms and in Kerala a similar acreage is under dry land cultivation. The Department's Rice Experiment

Station at Tirukuppam has developed a new variety TKM—9 which can be grown under rainfed conditions. It is drought resistant, can be grown all the year round under any type of soil, has a short duration of 105 to 110 days, is pest resistant and can be grown in the July—August samba season, yielding 2,922 kg. per hectare. It meets the farming conditions in Chingleput, Kanyakumari and Tirunelveli districts and is grown in the kar season in Tirunelveli district, kuruvai in Thanjavur and sonawari and navarai in the northern districts. Another rice research result is aimed at meeting the zinc deficiency in the paddy lands consequent on the use of HYV seeds, and high PH, water logging and high level of fertilisers use. The deficiency can be met by draining and drying the fields, applying zinc oxide to the seedlings before transplantation or applying zinc sulphate to the soil. Further IR-20, IR-34 and BG-90.2 are more tolerant to zinc deficiency in the soil. Research in vegetables cultivation as both the main and catch crop shows the need for adequate manuring of the soil, proper rotation as for example radish to be followed by brinjal or bendai and the proper use of fertilisers. Similarly the Tamil Nadu Agricultural University has developed a high grade quality banana hybrid, M-135 which is like the sirumalai, but which can be grown on the plains, away from the bunchy top virus disease which has affected the lower Palani hill area. The fruits produced can be increased by use of rhizomes and the ripening of the fruit can be delayed by increasing the humidity of the area where the fruits are stored. With the depletion of nutrient elements in the soil, research has been directed towards means of conserving the organic fertility of the soil. In Coimbatore farmers grow one leguminous green manure plant between the grain crop and cash crop—jowar, bajra or ragi in February—May, followed by sunflower in June—July and cotton in August—January. But sunflower needs frequent irrigation and has poor nitrogen fixation. Hence the Central Institute for Cotton Research, Coimbatore has through experimental trials arrived at the conclusion that CO-2 green gram is superior to sunflower in nitrogen and humus and at the same time produces a valuable pulse. The Tamil Nadu Agricultural University which released CO-2 points out that it is a 75 day short duration crop and yields a high 760 kg. of grain per hectare. One area where further research can have a high pay off is the energy needs of the farmer. Studies on tractorisation used mainly for seed bed preparation have been referred to earlier. Energy lifting of water and tillage is another such area. Another area investigated by the Paddy Experimental Station at Aduthurai is the means of dealing with field rats, wherein the insecticide phorate has been found to be effective and economical. In view of the poisonous effect of the pesticide, its use has to be restricted to the dry season and more work will have to be done on how this menace can be dealt with in the wet season. Cotton research is shifting to work on medium staple varieties and hybrids characterised by high yield, high ginning, pest and disease resistance and suitability for rainfed conditions. MCU-51.412 which is being tried in this State has a short maturation period of 125 days, with medium staple, photo-sensitiveness, tolerance to bacterial blight and yielding 20 quintals per hectare in rice fallows. The present breeding programme aims at develop-

ing more varieties which combine short duration with drought resistance and high yield. Also variations in maturity and trash contents have been noticed in improved varieties like suvin and MCU-6 which can and should be rectified through the concerted work of agronomists and breeders. Biological control of sugarcane pests is developing well. 15 out of 50 species of sugarcane pests have been controlled by using their natural enemies and this use of biotic agents to fight the different types of sugarcane pests should be pushed ahead. Due to successful research in the Himachal Pradesh Agricultural University, chicory seeds which are now being imported can be produced within the country. It is a cash crop growing from its tubers, which are processed into flour and used for blending with coffee. It is grown in Coimbatore district as the soil and climate there is suited to the crop. The average yield is 4–5 quintals per hectare, with a return of Rs. 25,000–30,000 per hectare per year.

Small Coconut Holdings:

The Indian Coconut Development Council at its recent meeting held in New Delhi has recommended that in future the emphasis should be on the generation of increased income and employment from the uneconomic and small cocount holdings. This means that in the state priority should be given to irrigation, mixed farming and multiple cropping within the frame of area programmes. Also for the Sixth Plan the production of hybrid and the replanting programme should be pushed forward.

Animal Husbandry:

The per capita availability of milk in the state has increased from 63 grams in 1964–65 to 104 grams in 1977–78, as a result of increased milk yield per day of cows and buffaloes. The milk yield per cow has increased from 1.22 to 1.83 kg. and of buffaloe from 1.83 to 2.44 kg. The State has a population of 292 lakh cows and 146 lakh milch buffaloes, the per capita consumption of milk in the State can be further increased, though there is a long way to go before reaching the international standard of 300 grams per capita per day. In addition to those functioning at Madurai, Thanjavur, Tirunelveli and Pudukottai, the Fifth Intensive Cattle Development Project in the State for increasing milk production is being set up in Tiruchirapalli. Key village blocks are to be established at Madurai and Ramanathapuram districts and Animal Disease Intelligence Units at Cuddalore and Coimbatore in addition to those existing at Vellore, Madurai, and Tirunelveli. 150 Fodder Development Centres are being organised to improve animal fodder along with establishment of silo pits and an increased artificial insemination campaign. In early April the State received a gift of 50 cattle from Australia which have been sent to the Eachenkottai centre where the pure breed of high milch variety animals are bred and supplied. The frozen semen bank is being aided by both the Australian and Danish governments. The government has formulated a large sheep development project at a cost of Rs. 35 crores, on which world Bank aid is being sought. A new policy in cattle breeding, the selective breeding of the ablest work animals, is now under way and it is being applied at Kangeyam in Coimbatore district for the wet land work animals of Umbiacherry in Thanjavur district. Cattle insurance which is a must has not caught on. The country has 28 crores of cattle and 8 crores of

buffaloes, of which 6 crores are milch cattle which need to be insured. In the Tiruchirappalli - Thanjavur - South Arcot belt, there is a livestock population of 4.50 millions, of which 61 per cent are bovine. The obstacles in the way of cattle insurance are inadequate veterinary services for certification, absence of cover for injury and sickness and lack of data on mortality. The Institute of Veterinary Preventive Medicine at Ranipet plays an important role in protecting and preserving livestock from various diseases. The Union government has proposed a scheme under which the areas south of the country upto Kanyakumari district and Kerala will be made a disease free zone for livestock development.

Fishery :

The Tamil Nadu Fisheries Development Corporation has since its formation 4 years ago built 480 mechanised boats worth Rs. 4.25 crores and placed outboard motors on 200 catamarans. For the Sixth Plan, there is to be a doubling of marine and inland fish production to 4 lakh tonnes of marine fish and 2.5 lakh tonnes of inland fish per annum. For deep sea fishing, 2 Mexican trawlers were acquired in March and small mechanised boats are also to be acquired for distribution to small fishermen. Also 1,500 tonnes of fish meal are to be produced in 1978-79. The Corporation will enter the shrimp export trade with its own brand for which a minimum annual target of Rs. 27 lakhs has been set. Under a Union sponsored scheme, a Brackish Water Fish Farm at Killai in South Arcot at a cost of Rs. 16.52 lakhs is to be set up, similar to the Kovalam farm which will start operation by the end of the year. The government is also planning legislation to provide relief to fishermen steeped in debt, which will also free them from the middlemen.

Tea :

India's tea production in 1977 was 560 million kg. of which 220 million kg. were exported. South India's share was 132 million kg., 15 per cent more than in 1977. On trends it should be noted that while India is first in tea production, productivity, consumption and exports, the domestic demand for tea is increasing at 7 per cent, whereas tea production is increasing at 3 per cent. Hence the need for accelerated production. There is a real chance that India will lose its lead among tea producing countries, unless investments are made to double production by the end of the century. This can be done as is demonstrated in the South India Plantations. The South India average yield is 1,500 kg. per hectare against North India's 1,400 kg., Karnataka leads with 1,821 kg. followed by Tamil Nadu 1,650 kg. In 1977-78 tea exports earned Rs. 556 crores, a record, despite the export being 5 million kg. less than the target. The increased earnings were due to the rise in unit value realisation to Rs. 25.30 a kg. against the normal Rs. 11.80. For 1978-79, the government has fixed the export target at 235-240 million kg. (an increase of 10 to 15 million kg. over 1977-78), on the understanding that tea production in the year will reach 600 million kg. Also the industry is to increase packaged exports from Rs. 40 crores to Rs. 60 crores in 1978-79 and Rs. 100 crores in the following year. The effect of the budget on the tea industry is still being debated at the end of April. Against the increased excise on its inputs, is the lower interest rate and the investment allowance for staff

quarters. In Sri Lanka a massive plantation programme is underway and along with rationalising and demarcating lines of management and a replanting programme of 5,000-7,000 acres a year and factory modernisation, the tea industry in Sri Lanka will develop into a sound industry, better in some parts than India. The tea marketing system in the country is under study. On the whole there seems to be a case for leaving the marketing system alone, provided the tea industry markets its entire product—cent per cent—through auctions.

Coffee :

Coffee production is mainly concentrated in the south where the estimated production was 1,10,000 tonnes in 1977-78. There are more than one lakh units involved, with 72,000 small holdings accounting for 60,000 hectares and producing only 26 per cent of the coffee production. This is sub-optimal and should be attended to. Coffee exports during April-May 1977 totalled 3.32 lakh tonnes valued at Rs. 122 crores compared to 2.96 lakh tonnes valued at Rs. 59 crores during the corresponding period of the previous year. Exports during April-December amounted to 4.35 lakh tonnes valued at Rs. 187 crores. For 1977-78 exports will reach 5.8 lakh tonnes with export earnings of Rs. 240 crores. The year's financial target of Rs. 155 crores has been exceeded. Meanwhile the non-traditional coffee growing areas in Andhra Pradesh, Assam, Orissa, Mizoram and Meghalaya are developing well, with Andhra Pradesh leading with 10,000 acres.

Rubber :

Rubber production in 1977-78 was over 1,50,000 tonnes in spite of the prolonged monsoon. The question of rubber prices is to the fore again. There is the problem of the cost of production which is estimated at Rs. 800 per quintal, while rubber prices are down to Rs. 500-600. Then there is also the question of Indian rubber prices in relation to international rubber prices. In fact during the 9 month period, April to December 1977, production amounted to 1,18,983 tonnes, with the consumption at this time being 1,07,623 tonnes. The stock of rubber with manufacturers was 57,414 tonnes in December 1977. Indian price was Rs. 648.86 per quintal, while the prices in Malaysia and London were Rs. 754 and Rs. 861 per quintal. There is a case for an upward revision of rubber prices.

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III Industrial Development

Salem Steel :

The Salem project reports in March that the work on the first phase of the steel plant is gathering momentum with the signing early in the month of the structural and civil works with the Hindustan Steel Works Construction for the first phase including buildings,

foundations, roads, railways and underground communications at a cost of Rs. 21 crores. The company had already moved bulldozers, cranes, dumpers and concrete mixers and sophisticated machinery were on the way. Work on the mechanical, civil and electrical workshops, stores and balancing reservoir site offices is underway. Out of 11 KM of railway track within the steel complex campus, over 8 KM has been completed. Work on the cold rolling mill complex has commenced. The steel plant is scheduled to go on stream by mid 1981.

NLC :

All units of the Neyveli Lignite Corporation exceeded their targets in 1976-77 inspite of not reaching their rated capacity. Lignite production during the year was 40.17 lakh tonnes against a target of 36 lakh tonnes. Power generation was 2,306 million units (lignite based) and 662 million units (oil based) against the targets of 1970 million units and 524 million units respectively. Urea production was 95,779 tonnes against a target of 67,500 tonnes, Leco production 49,659 tonnes against a target of 32,000 tonnes and washed clay 3,617 tonnes against 2,700 tonnes. Because of inadequate lignite supply, 2 boilers of 50 MW capacity had been converted to oil firing (see Vol. III p. 348). They will be converted back to a lignite base when the lignite expansion programme is completed. For the first time, the Corporation earned a profit of Rs. 14.25 crores.

BHEL :

BHEL will be supplying, erecting and commissioning the power generation equipment of 600 MW capacity for the first super thermal plant at Singrauli at a cost of Rs. 70 crores provided by the World Bank. The equipment includes three 200 MW turbo generators, three 250 MW generators-transformers, and two 100 MV inter-connecting transformers for the 400 KV transmission system. BHEL will be responsible for the complete design, engineering and manufacture as well as the erection. Also the Rajasthan State Electricity Board has placed an order with BHEL for the supply of 2x110 MW steam generators to be located near Kota. The boiler will cost Rs. 19 crores.

HPF :

Hindustan Photo Films has developed plans for diversification and the development of ancillaries in backward areas in order to meet its requirements. It is now getting ready to implement expeditiously the setting up of the new conversion plant for graphic arts and industrial X-ray films. The plant costingRs. 2 crores will be commissioned in January 1979. For 1977-78 the turnover is expected to be Rs. 35 crores as against Rs. 31 crores in the previous year, when the profit was Rs. 1.43 crores which will be higher in 1977-78. It meets fully the country's requirements for civic positive (black and white), medical X-ray film, cine sound negative and the major part of the demand for bromide paper and has exported Rs. 1 crore of goods.

ICF and MFL :

At the end of March, a 12 coach double decker inter-city fast express train rolled out of the Integrated Coach Factory's assembly line. To provide maximum passenger carrying capacity

plus comfort and safety, a prototype double decker coach was put on extensive trial on the Madras-Jolarpettai sector and on the basis of its popular acclaim the coach is now being produced, at a cost of Rs. 7.5 lakh each. The coach was produced in 6 months a record, and came into use on the 125th anniversary of the Indian Railways. The Union government is taking over the 24.5 per cent share holding of the US company AMOCO in Madras Fertilisers Limited, which means India will hold 51 per cent and 24.5 per cent of the shares and the Iranian government the other 24.5 per cent. The compensation to be paid to AMOCO will take into account the loan liability of $ 10.78 million due to it, its high profitability rate and its working at 90 per cent capacity (against its installed capacity of 1,76,000 tonnes, its production upto February 1978 was 1,20,400 tonnes).

Madras Refineries and Madras Rubber and Sandalwood Plant :

AMOCO has also a $ 2.34 million share holding in Madras Refineries (with Iran having an equivalent amount) Here too the Union government is the majority shareholder (Rs. 9.53 crores) and it is expected that AMOCO will pull out of this unit also, with compensation to be paid by the government. Madras Rubber Factory which introduced nylon car tyres for the first time in the country has now come out with radial car tyres–which have advantages over conventional tyres in mileage, safety, economy and vehicle stability Depending on the response of the market to radial car tyres, the company plans to develop and introduce further new products. The State government announced its decision in March to establish a plant to manufacture sandalwood oil and ancillary industries such as *agarbathi* units. Its location is under review and depending on the success of this plant, other sandalwood product units are to be started.

District Industrial Centres and Future Industrial Policy :

The State government in consultation with the Union government announced in March the setting up of Industrial Centres in the districts of Chingleput, South Arcot, Dharmapuri, Salem, Pudukottai, Ramanathapuram and Tirunelveli. The Centres will assist prospective entrepreneurs in securing financial assistance from institutions, purchasing machinery and organising marketing networks. These centres set up in May will be followed by centres in the other 7 districts during the year. The Directorate of Industries and the Small Industries Development Corporation have been nominated as extension agencies for these centres and for small industries development. The R. Venkataraman Committee on the future industrial policy (see Vol. VI p. 590), in view of the State's large stock of scientists and technologists, high technologies and high value added areas should be planned and developed. Another area to be developed is the processing and semi-processing of raw materials which are at present exported, such as leather. Electronics industry which needs little power and water (the State's two constraints) should be developed; in addition to entertainment electronics, compartments, instruments, medical apparatus, semi-conductors are yet to be explored. Again the area of fine chemicals needs to be developed as well as the drugs and pharmaceuticals area. Reviewing the work of the State

Corporations, it commends the work of TIIC and suggests speeding up its loan sanction procedure, it recommends ending the SIDCO-TIIC consortium, and for SIDCO to assume full responsibility for term lending operation, and also for SIDCO to develop a package of extension services to semi-urban and rural people. SIPCOT is also commended and it is recommended that the work of joint sector promotion should be taken away from TIDCO and entrusted to SIPCOT. This means TIDCO which is a production and promotion agency should concentrate only on production and all major production activities in the public sector like cement, steel, sugar should be brought under TIDCO. TANSI should be rationalised, its production limited to managing training cum demonstration centres which involves its turning many small undertakings into workers co-operatives. One area which should be developed is the salt industry and salt based chemicals in view of the State's long coast line. It is also recommended that the Chairman and Chief executive in the corporation should be given some stability and continue to produce results.

Cement, Textiles and Modern Bakeries :

The cement units in the State faced a serious problem of coal shortage in February and March. In addition to the inadequacy of railway wagons for moving coal, the effect of the cyclone in Andhra Pradesh disrupted rail traffic, so that in February the cement units faced a shortage of 70 per cent of the coal supply. Action has to be taken to move 15 per cent of the coal by sea for the state, and this raised the question of who should pay the subsidy to meet the increased cost which sea transportation involves. The annual movement of 5 lakh tonnes by sea involves the Department of Coal in a subsidy of Rs. 3 crores which is paid out of the 5-10 per cent cess of the conservation and modernisation fund of the Department. The Department now feels that the additional subsidy cannot be paid by it without impairing its modernisation programme, and should be paid by the railways or the department of Industry. The matter is now before the Union Cabinet for decision. In mid March the State government refixed the retail price of imported and controlled varieties of indigenous cement at Rs. 411.45 and Rs. 406.45 per tonne. The cost per bag now is Rs. 20.57 and Rs. 20.53 respectively. The textile mills in the Coimbatore area faced in April some labour problems arising out of the fact that a large number of workers are employed there as casual workers, inspite of having been workers in the mills for several years. The number involved is large, being over 10,000 workers. The same issue was raised in March by workers in the Madras unit of Modern Bakeries, where go slow, work stoppage and strikes were resorted to by the workers in order to stop the management from employing casual workers against vacancies arising out of absenteeism. As production of bread declined to 50 per cent of the regular output, the factory suspended work from mid March.

Petro-Chemicals :

A petro chemical plant at a cost of Rs. 25 crores as an adjunct to its caustic soda plant at Ennore is being established by Kotharis. The Unit will use chlorine from the caustic soda plant and produce PVC or pesticides. The caustic soda plant (Rs. 16 crores) is on schedule and

trial production will start in August. The government has assured the project full supply of the power it needs, and on present estimates in 1979 the plant should earn a profit of Rs. 80-90 lakhs before depreciation.

Handloom and Silk Production :

The State government announced at the end of April the setting up of a broad based Handloom Board to service all sectors and interests of the handloom industry. At the 29th co-operative handloom exhibition, Rs. 110 lakhs of fabrics were sold this year, compared to last year's Rs. 69.21 lakhs. The government is also taking steps to relieve the handloom workers who face a crisis consequent on the reduced export quota fixed by TEXPROCIL, representing the Union government. The EEC quota does not distinguish between handloom, power loom and mill made cloth and TEXPROCIL just allocated quotas on the basis of the price of Rs. 40 and above for garments. Handloom garments which are marked by variety and reasonable price (Rs. 15 to 20 per piece) suffer under this arrangement and so the State government has suggested to the Union government that based on the past performance of the handloom sector in the total garment exports, 70 per cent of the overall quota should be reserved for the handloom industry, with the Handloom Commissioner deciding on the separate floor price and cut off price for handloom garments, giving preference to exporters with firm export contracts. This is a reasonable and feasible alternative to operate the EEC quota and the Union government's decision is awaited. The Union government announced in April that in consultation with the State Government a scheme of good and cheap houses for weavers is to be launched to improve the living conditions of weavers. On the side of silk production, Tamil Nadu along with Karnataka and West Bengal will be increasing the raw silk production by 6,000 quintals value at Rs. 15 crores and creating employment for 2 lakh of people this year. The output of raw silk in 1977-78 is estimated at 75,000 quintals with 1.5 lakh handloom and 4,000 power looms, producing 50 million sq. metres of silk fabrics worth Rs. 150 crores. Tamil Nadu's mulberry production will be increased under the intensive seri-culture scheme of the State.

Leather :

South East Footwear Limited, a Rs. 1.6 crore export oriented foot-wear manufacturing plant started commercial production at Ambur. It raised Rs. 2.8 lakhs equity shares of Rs.10 each. The foreign collaborator, Calzat, Itlay is providing technical knowhow, training the company's personnel at its own unit in Rome, and assisting the end product marketing overseas. Though foot-wear exports have grown from 6 million pairs in 1969-70 to 10.5 million pairs in 1974-75, India's share in the world foot-wear trade is only 2 per cent. And a major part of the foot-wear exported is to USSR and Eastern Europe and only recently a beginning has been made on foot-wear exports to France and UK. While upper and lining leathers are available locally, the casts, heels and soles are being imported now. Against an installed capacity of 1,250 pairs of shoes per day, 40 per cent utilisation will enable it to break even and full capacity enable to earn a foreign exchange of Rs. 6 crores per annum. The company is also planning to produce slightly low price but high quality shoes for the Indian market. The leather goods Industry has brought

its difficulties to the attention of the government. The availability of finished leather has become difficult, a cash assistance of upto 20 per cent and a duty drawback of 7.5 per cent are necessary for paying a better price for the finished leather. Also a rebate of 50 per cent instead of the present 40 per cent on the air freight is requested, restoration to the old level of 20 per cent of import replenishment license, permission to import zips upto 40 per cent of the value and inclusion of all leather machines like clicking press and skiving machine with the reduced import duty of 25 per cent are needed. With these aids, it is estimated that leather goods (excluding shoes) exports will be Rs. 4.5 crores in 2 year instead of the present 3 crores. The total export for 11 months in 1977-78 was Rs. 225.45 crores against Rs. 262.50 crores for 11 months in 1976-77, a decline of 14 per cent, most prominently in EI tanned hides and skins, foot-wear, finished leathers and goat hair. Against the target of Rs. 340 crores for 1977-78, total exports despite some improvement in the past 3 months are likely to fall short by about 12 per cent to Rs. 300 crores (Rs. 318 crores in 1976-77). Due to the world recession in the leather trade, leather exports have fallen to the fifth place in the country. For 1978-79 the Export Promotion Council for finished leather and leather manufacturers has suggested to the government a target of Rs. 345 crores, comprising Rs. 185 crores for finished leathers and tanned furs, foot-wear and components of Rs. 85 crores, leather goods and industrial leather manufacturers Rs. 50 crores, and wet blue chrome and tanned hides and skins Rs. 25 crores. There is need for the government to set up a leather office at Brussels to study fashion trend and styles, market trends, tariff barriers and establish contacts between prospective collaborators and their Indian counterparts. In April the commerce ministry announced leather export policy for 1978-79, which notionally reduced the quota for various semi-finished leathers but actually will have no reducing effect. Against the export of 25,000 pieces of semi-finished goat skins, for instance, the 1978-79 quota has been fixed at 47,500 pieces.

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IV Education, Science and Health

Unrest in Educational Institutions:

March and April recorded a sharp increase in unrest, strikes, ghareos, police firings and closing of universities. In this state, the teachers threatened to boycott examinations in regard to various demands about their conditions of service—job security, promotions and salary levels—and after over 2 months of negotiations during which examinations had to be postponed. A similar

situation developed in Kerala in April.. Police opend fire in 5 universities, police intervention was called for to prevent further violence and 14 universities—Delhi, Benares, Lucknow, Gorakhpur, Bhopal, Utkal, Pantnagar, all 5 universities in Bihar, Bangalore and Venkateswara—were closed during March and parts of April. The Prime Minister came out in the Lok Sabha with a clear statement against all forms of student violence and promised the fullest cooperation of the government. He also announced that there will be a meeting of the political parties to agree on political parties keeping out of universities. The Association of Indian Universities met the Prime Minister in April and thanked him for his support and discussed with him ways and means of restoring peace in the Universities and colleges.

Educational Reform :

The State government directed the schools in March that there should be no detentions in standard I to III from the end of the school year 1977-78. This will reduce the problem of stagnation and dropouts. In place of annual examinations there will continuous monitoring of every student's progress, with remedial action being taken in suitable cases. This reform throws an extra burden on teachers. The government also announced in the Assembly in March that the higher secondary (+2) will be started in 500 schools in the state, of which 200 have already been announced and for which text-books have been published, training and orientation courses for teachers organised laboratory equipment provided and a special cell in the PWD created for speedy construction of school buildings. In the case of teachers rendered surplus by the abolition of the 11th standard on account of the 10+2 system, they will be absorbed by redeploying them in standard 8 to 10 or by transfer to other schools. The Board of Higher Secondary Education approved plans for implementation of the academic and vocational courses and recommended as admission requirement 35 per cent marks in each subject for those declared eligible for admission to the University. To help the development of this stage, college complexes are being set up under which a college will help its neighbouring higher secondary schools—with laboratories and libraries access and teachers orientation. The University of Madras and the government are preparing the ground for the launching of the universities of Tiruchirapalli and Coimbatore on which the green light from the UGC has been indirectly received. The Prime Minister once more in April has reiterated his view that Indian languages should be the medium of instruction from the primary to the doctoral stage. The University of Madras has now formed a language commission to aim at a move towards 50 per cent of students using the Tamil medium at the undergraduate level instead of the present 10 per cent. As part of the observation of the International Year of the Child in 1979, the Union ministry of education has advised the Planning Commission to prepare a perspective plan for child development for the next 2 decades (1979-1999) Priority in the plan, it is recommended, should be given to children in ecologically deprived areas such as drought affected, coastal, hilly and tribal areas and to children from the weaker sections. It has been estimated that of the 115 million children aged upto 6 years, at least 46 million live in object poverty.

Of these 9.2 million live in teeming slums, 28 million in tribal areas and 34 million in rural areas which are inaccessible and beset by floods, drought and hazards of marginal existence. The Union government announced in April that it has decided to give priority to the educational sector in the supply of white printing paper and will distribute it through State level committees for the production of exercise and textbooks as well as books of general literary cultural value.

Mass Media and Adult Education:

In April the report of the working group on autonomy for AIR and TV was presented to the government (See Vol. VIII pp. 167 & 233). It recommends a National Broadcasting Trust, with a highly decentralised structure to operate the AIR/TV as an autonomous corporation. The Trust will be run by a 12 member board to be appointed by the President, on the recommendation of the Prime Minister in consultation with the leader of the opposition. The Trust will have 5 regional boards and stations and each regional board a number of individual stations. There is to be an audience research cell and a complaints board to keep the Trust informated of public and consumer needs and reaction. The Trust will grant broadcast franchises to universities and colleges to operate radio or TV systems for educational purposes and will encourage private agencies to produce programmes. The report is now under debate in the country (Madras has had 3 public discussions) and it is expected that the Lok Sabha will pass the necessary legislation at its winter session, so that the Trust can come into existence in early 1979. A mass literacy campaign is to be launched from October 2 of this year to provide education to 6.6 crores illiterate adults during the Sixth Plan, the government announced in April in the Lok Sabha and Rajya Sabha. The Secretary of the union ministry concerned had a preparatory meeting on this programme for the 4 southern states in mid April at Tiruchi at which the details of the programme were worked out. The programme calls for close co-operation with the Departments of Agriculture, Health, Labour and Employment and Rural Development in each State and all those officers were involved in the Tiruchi meeting. The Union ministry has also allocated Rs. 50 crores in the Sixth Plan and Rs. 4 crores this year to provide non-formal education to the school drop outs and leftouts in the country. It estimates 74 per cent of the total non-enrolled children are in Andhra Pradesh, Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, and West Bengal, with two thirds of them being girls and the majority from ST, SC, and landless agricultural labourer families. In 1978-79 the State government has decided to open 780 non formal education centres by the Panchayat Unions out of their own funds to educate drop-outs in the age-group 6-14. Teachers working in these centres will be paid an additional remuneration of Rs. 50 per month. These are in addition to the 748 centres already functioning under the Directorate of Non-Formal Education. The centres are functioning well and will be an important means of reaching the goal of universalisation of primary education.

Technical Education:

In early April, the Tamil Nadu legislature adopted legislation to set up the Perarignar Anna University of Technology

from the academic year 1978–79. The University will be composed of the Engineering College, Guindy, the Madras Institute of Technology and the Departments of Chemical Technology, Textile Technology, Leather Technology and the School of Architecture and Twon Planning of the AC college of Technology of the Madras University. In the coming months, Madras University and the new university will enter into agreements for the operation of the university. The State government announced that the intake of engineering college in the State will be raised from 1422 to 1525 in 1978–79. Management studies are to be included in the curriculum of engineering degrees to make the engineering graduates more equipped to run their manufacturing and engineering concerns. The policy of admitting women in men's polytechnics is to be extended further to all polytechnics in the coming year.

Science :

The Central Roads Research Institute which has developed the technology for the design, construction and maintenance of different types of roads, using locally available materials, is now turning its attention to economical methods of strengthening existing road pavements and rating highway bridges to cater to different vehicle loads and the manner in which mechanisation and labour intensive techniques may be combined in an optimum proportion. With the delays and possible denials by the US government suppliers of the supply of enriched uranium, the BARC scientists are now engaged in research in identifying alternative fuel supplies for Tarapur and other nuclear power stations. The National Research Development Corporation reports that in 1976–77 the value of production under licenses it issued was Rs. 40 crores including Rs. 32 crores in foreign exchange savings. During the year, 47 new inventions were received from 33 research institutions and 2 individuals and projects under way include conversion of coal to oil, continuous paddy parboiling system and increased recovery of sugar. The Indian Coconut Development Council is organising research into the rootwilt disease and has in the meanwhile recommended a coconut replanting programme and is working on DXI hybrid seed production. The groundnut research programme initiated by BARC where scientists developed certain HYV seeds yielding 40 per cent more per hectare and 2 per cent more of oil content and which was taken over by a group of young oil seed dealers in the Indian Oil Production Association, financing their research through a levy of Rs. 100 per tonne of HPS groundnut exported, have now runout of funds as the HPS groundnut export was stopped in 1977. (See Vol. VII p. 689, Vol. VIII pp. 7 & 80). There is need for the government to finance this inportant export. Another development is the design of a new bullock cart with a capacity of carrying 2.5 to 3 tonnes along with optimum driving efficiency, minimum capital cost and handing cost, high mobility on rough roads high ratios of payload to carriage weight and a self braking device in the yoke–by salvi super structure called Salves. The small scale company is now ready to produce the carts commercially. The Union government announced in mid April that it will set up a National Bureau of Animal and Fish Genetic Resource to research into prevention of erosion of valuable genes and preserve

for the future the results of thousands of years of natural and human selection. Also the 21 Agricultural Universities will be the participating agents for conducting research into crops, farm animals, fisheries and forestry. A National Agricultural Research Fund, created with the help of the world Bank will enhance the capacity of the Agricultural Universities to take up location specific research in the major agro-ecological zones of each state. The National Bureau of Soil Survey and Land Use Planning and the National Bureau of Plant Genetics Resources will be strengthened to improve the conservation, cataloging and utilisation of the major agricultural assets of the country. Intensive research on agro-meterology and pest management will evolve early warning system to help tackle in time weather aberrations and pests outbreaks and taking up alternative cropping systems to suit different weather models. Post harvest technology will be intensified to help farmers get better returns from their crops. A centre for Agricultural Economics is planned to take up micro level constraints analysis on the socio-economic factors and to use the vast untapped yield reservoirs existing even at the level of existing technology. Multi-disciplinary operational research projects will push forward on multiple and relay cropping, rainfed farming, inter and mixed farming involving crops, livestock and fish. Also a National Research Centre of Excellence headed by Professors of emminence is being established to develop basic research in photo synthesis, nitrogen fixation, organic recycling etc. In medical research in the State, the Cancer Institute of Adyar has acquired a haemonetics cell separator to help in blood transfusion technique by enabling one donor to supply the needed blood and its corpuscles (instead of 4 or 5) and return the blood, not needed, to the donor.

Health :

The State's scheme of mobile medical teams for rural areas as an alternative to the Union government's programme of community health workers has been accepted by the latter. The scheme now functioning in 24 PHCs is being extended to 100 PHCs this year. Under the scheme where a team of medical officers visited the villages on specified days, the entire block will be covered in a week. 54 mini health centres operated by voluntary agencies in 1977-78 will be expanded to over 100 this year. The Multipurpose Health Workers' scheme integrating workers in the Malaria Eradication and Smallpox Eradication programmes will provide 1 male 1 female worker for every 5,000 population and will commence operation in Madurai, Kanyakumari, Salem, South Arcot and Chingleput districts. The Family Planning Programme is operating in the state without the system of disincentives. Rs. 115 for each vasectomy and Rs. 145 for each tubectomy are paid in the State. The performance last year was below target which was 3.5 lakhs for voluntary sterilisation, with only 69,357 achievement. For IUD the target was 35,000 and achievement 18,040 and for conventional contraceptive the achievement was 100,749 against the targer of 2,21,800. The government has increased the funds allotted to each PHC from Rs. 14,000 to Rs. 20,000, attached 3 doctors to each health unit and the aim is to provide all villages in the state with full medical facilities by the end of the year. The Union government announced in April its plan to appoint a doctor practising indigeneous system of medicine to every health centre. 30,000 trained community health workers are now in the field under the rural health scheme, the union government reports.

V Employment

ON the basis of the records of Employment Exchanges, unemployed job seekers in 1977 increased by 11.6 per cent. From 97.84 lakhs in 1976, their numbers rose to 109.24 lakhs in 1977. The number of educated job seekers rose by 9.3 per cent between the 2 years, from 49.74 lakhs in June 1976 to 53.91 lakhs in June 1977. The number of placements, on the other hand fell by 7.1 per cent from 4.97 lakhs in 1976 to 4.62 lakhs in 1977. Against this rather sombre background, the employment services of the country need to be intensified. The career study centre undertaking occupational research and analysis, the special cells for helping surplus personnel in the public sector like Bokhara, TV, ex-servicemen, and the employment exchange machinery developing close contacts with other manpower and employment agencies–all acquire a new importance. The government has also set up a nine member committee under the Chairmanship of Mr.P.C. Mathew to review and recommend measures for streamlining the working of employment exchanges and to remedy their shortcomings. The recruitment of skilled, semi-skilled and unskilled workers by private agents for service abroad is being regulated by the Union Ministry of Labour which has set up an overseas employment cell in the Directorate General of Employment and Training to handle this activity. An official committee is examining all aspects of overseas employment of Indian skilled, semi-skilled and unskilled workers. In fact the setting up of an Overseas Employment Corporation has been suggested because overseas employment is necessary in this situation of large unemployment and at the same time it is open to abuse. A programme for the expansion and diversification of voctional training of women is to begin operation with the help of SIDA and ILO. There are 356 ITIs in the country with 1.55 lakhs trainees but here again the unemployment of the trainees on completion is worrisome. The Planning Commission computes, as noted earlier, that at present there are 21 million man years of unemployed, which makes it impossible to make employment or the programme of an unemployment allowance which some states like Kerala and Andhra Pradesh are in part attempting, a statutory right. For this year the government has drawn up an intensive development programme for 2000 blocks in the country which will provide full employment. 130 blocks in Tamil Nadu have been chosen under this scheme. These are the blocks in which for SFDA an additional sum of Rs.5 lakhs per block, DPAP for which an additional Rs. 4 lakhs per block and CAD for which Rs. 4 lakhs per block are to be made available. The industrial and labour unrest situation is serious in the country. In 1977, 10.67 million mandays were lost as a result of lockouts and 10.54 million mandays through strikes. The loss on lockouts was the highest since 1970, that on strikes the lowest in the 7 years. Of the 21.12 million mandays lost in 1977, 17.31 million mandays lost were in the private sector and 3.90 million mandays in the public sector. The endemic areas of industrial unrest were Thana and Belapur in Maharashtra, Ghaziabad in UP, Faridabad in Haryana, the coal belt and Gujarat. In Tamil Nadu there was a brief spell of

agricultural workers unrest as noted earlier. *In this climate, the development* programme and the objectives of eradication of destitution and unemployment become the casualty. In April the All India Khadi and Village Industries Commisoion announced a scheme to provide employment to at least 50 lakhs more village artisans. The Department of Electronics has drawn up a scheme to *bring back well qualified electronists and* specialists from abroad to work in the *National Informatics Centre, Semi* Conductor Corporation, Computer Maintenance Corporation and Electronics Trade, and Technology Development Corporation to further develop the Electronics industry in the country. The Electronics Commission is assisting each state to establish electronic testing and development centre where also these *specialists can be employed. The* Technical Manpower Bulletin of CSIR in its *January 1978 issue reports that* 682 scientists are enrolled in the Indians Abroad Section of the *National Register* of Scientific and Technical personnel between 18 January and 31 December 1977. The largest are in the UK (238) followed by US (224), scientists being the greatest in number (247) closely followed by engineers (239). Its February *issue reports* on the scientists pool. Since its start in 1959, 12,554 have been *selected to the pool, the largest being* those in the US (4,711), followed by UK (3858) and India (1472). 4649 are scientists, 3905 engineers 3,333 doctors, 462 technologists and 205 social scientists. During the period 5654 joined and 5184 left for jobs. The largest number are located in universities (298 out of 470) and on the longest is in terms *of duration of 1 year or less* (232).

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VI Other Items

ASPBAE :

A conference of the six countries who comprise the South Asian region of the Asian and South Pacific Bureau of Adult Education met In Teheran to review the programmes of Adult Education and Adult Literacy in the countries, take stock *of the needs and resources* of each country in the area of Adult Education and draw up a regional programme of cooperation. One of the main results of the conference was the recognition of the two *education priorities-eradication* of illiteracy and the need for universalisation of elementary education—in the countries. *It was decided to hold the next conference/seminar* in India in 1979 on the training of Non-formal Educators for unschooled and underschooled. The Indian Adult Education Association is preparing for this event in consultation with the other South East Asian countries.

Development re-examined :

The Marga Institute in Colombo called together a group of about dozen Asian scholars, economists, other social scientists and planners to review and re-*examine the concept of development* from the Asian point of view. It very quickly became obvious that the usual development yard stick—GNP—was not relevant and the current futurist models represented an incomplete picture of Asia. The more difficult parts of the discussion were what constituted development. Here the empirical evidence from China and Vietnam with their communist structures, and that from Sri Lanka and Kerala provided certain leads. It was agreed that the development institutes in Asia should work further on these facts and that their work should be coordinated by the Marga Institute.

ICSSR AND UGC :

The Research Advisory Committee of ICSSR held its monthly meeting in March, reviewed the request for research project assistance, approve some 20 of them and deferred consideration of an equal number. This was an important meeting, because the member-Secretary, Mr. J. P. Naik, who had founded and nurtured the Council to date was retiring after this meeting. The Council and its research programme owe their level of excellence to Mr. Naik. In March also the UGC committee on fine arts and culture met and decided to initiate a new programme of 8 fellowships for creative artists, to enable in the universities and open to distinguished artists who have no academic qualifications and 12 fellowships for creative writers. Madras University is one of the beneficiaries of this much needed programme, under which some four outstanding artists will be in residence in the University next year to give the staff and students some understanding of the cultural dimension of life.

IAEA :

In March cousulation was held at the headquarters of the Indian Adult Education Association to finalise a questionnaire on the state of drop-outs and educational wastage in each of South Asian countries as preparation for the 1979 conference/seminar referred to earlier. In April there was a meeting of the Executive Committee of the Association at which the participation of the member agencies in the National Adult Education Programme was reviewed and decisions made to improve and strengthen it. The national projects were also examined and arrangements for the national conference finalised.

NAEP :

In April there was a one week training programme in the University for the trainees of fhe affiliated colleges participating in the National Adult Education Programmes. The course which was conducted in Tamil has produced a training material which will be used in the college to train the student teachers. This course was preceded by a 2 day workshop of 12 principals of colleges who met at Sri Avinasilingam College, Coimbatore, in mid March at which the means of planning the colleges' participation in the National Adult Education Programme was established. 10 training courses in 10 colleges are being held in April and May, the first one at the end of April in Stella Maris College, Madras at which 20 college coordinators were trained in Adult

literacy methods. At the end of April, there was a working group in the Union ministry of Education at Delhi at which the dimensions of International co-operation in the programme were discussed and agreed upon.

Non-Formal Education :

A meeting of the Governning Council of the Resource Centre was held in April to review the work of the centre, approve its budget and decide on the staff contracts and appointments. Also a meeting of the executive committee of the Tamil Nadu Board of Continuing Education was held in March to review the work of the member bodies and their plans to participate in the NAEP. The non-formal education project with which the work of the Board started is now in its third year and has produced a group of live active and keen boys and girls who can be used, among other matters, as teachers of those programmes.

College, School, Hostel Days and Kilpauk Medical College :

In April AC College of Technology Madras celebrated its annual college day at which reports were given of the very active and creative extra curricular life of the engineers and technologists who are being trained in the college. Also after a 4 years gap, the University women's postgraduate hostel celebrated its hostel day - an occasion when the further hostel developments that need to be attended to were reviewed. Also in April, the PS Higher Secondary School, Madras celebrated its annual day at which its new science block was inaugurated. Its plans for participating in +2 course were reviewed and discussed. Kilpauk Medical College, Madras inaugurated in April a diabetic heart cell with the help of an ECG equipment donated by one of the charities. A lot of research remains to be done in the field of diabetes but in the meanwhile with existing knowledge a lot of suffering can be relieved. And that is what the cell is planning to address itself to.

Silappadikaram and Mylapore Academy :

In April the Saiva Sidhanta Society organised a series of functions at which some of its important Tamil publications were released. One of these is the second English version of the Tamil classic *Silappadikaram*, brought out about 40 years ago by Mr. R. Dikshitar. It is a contribution to the world of scholarship and culture and that this work has been reissued. The Mylapore Academy celebrated its silver jubilee in April. The Academy has become a wide ranging educational, cultural and welfare agency and has mobilised resources from non-official agencies and individuals to further the education and cultural life of the State.

Verghese Committee and Economic Lecture :

On the occasion of the visit of Mr. B.G. Verghese to Madras, a public forum was organised in the university at which there was a good and fruitful debate on the report of the committee which has recommended autonomy to AIR and TV. Several suggestions for increasing the competitive element were made and should be taken into consideration in the formulation of the legislation. The Economics Department of the University organised a public lecture at which Prof. Raj Krishna give a clear and convincing

exposition of the objectives, the rationale and the sectoral contents of the Sixth Plan.

Dr. Ambedkar's Anniversary, Institute of Traditional Cultures and SCERT :

In April, Dr. Ambedkar's anniversary was celebrated at a series of public meetings at Rajaji Hall at which the continuing scandal of having people living outside of society was discussed and pledges made to fight the social evil. The Institute of Traditional Cultures organised a 2 day conference in the University at which discussions and demonstration of the various philosphies and ortforms which are characteristic of the region were organised. SCERT organised a one day seminar on alternative of education. The reasons for the search of educational alternatives were agreed upon and there was a general consensus that the sixth plan provision for a new system of elementary education, non-formal education and adult literacy are the alternatives to which we should commit ourselves.

Governing Council of MIDS :

The Governing Council of the Institute met on March 17 and 24. After condoling the death of Mr. M. N. Rao, a trustee and member of the council and Miss S. Pothan, Asst. Editor of the Bulletin, it accepted the report for 1977-78 presented by Director, approved the sixth plan proposals that has been sent to ICSSR (priority A Rs. 4-5 lakhs a year plus a non-recurring expenditure of Rs. 11 lakhs and priority B, an Rs. 3-5 lakhs recurring and Rs. 3 lakhs non recurring) also approved the programme and budget for 1978-79, reviewed and approved the proposals of staff and the regulations for the Provident Fund and a number of other matters. The Building Committee established by the Council met on April 29 and approved the estimates for the renovation of the Director's residence.

Association of Indian Universities and Rajya Sabha :

The standing committee of the Association of Indian Universities met on April 15 and decided on a number of matters concerning the universities and Association. Its most important discussion was about the serious violence in the universities on which it took a number of decisions including one to wait on Prime Minister, referred to earlier. The Director of the Madras Institute of Development Studies having been nominated a Member of Parliament (to the Rajya Sbbha) attended the Rajya Sabha meeting on April 24 when he was sworn in and delivered his maiden speech on the demand for education on the 25th.

University Events :

During March and April there were a series of university seminars on Animal behaviour, manmade fibres, algebra and the inauguration of the important summer employment information programme of the University's Student Information Bureau. There was a meeting of the Academi council in early March at which the new syllabus and innovations for 1978-79 were approved. There was a meeting of the Principals of the colleges which followed, at which their participation in NAEP was reviewed. The annual meeting of the Senate was held at the end of March at which the annual report of the university was approved and the budget for 1978-79

voted. There was a meeting of the Advisory Council of Industry and Trade on April 17 at which 6 new employment preparation post graduate courses were established. At the end of April, a seminar of the 12 colleges which are to become autonomous in the Madras and Madurai universities was held at which a number of procedures were clarified. The Syndicate met once in March and once in April and reviewed the progress of the university and made decisions on matters presented to it.

April Development Seminar:

The Paper 'Elimination of Illiteracy' by Prof. Jothi for the April Seminar together with a summary of the discussion on the paper at the seminar under the Chairmansip of Mrs. Sarasvati Nityananda appears as the first article.

Second Article:

A paper, 'The Third World's Development Needs' appears as the second article.

Special Article:

The special articles section in this issue reports on the Eighth Survey of Social Science Research in Tamil Nadu.

ELIMINATION OF ILLITERACY

By

Prof. M. S. JOTHI

Madras

The realisation that illiteracy is a great hindrance to economic growth and that elimination of illiteracy should be a major area of concern for all developing countries has been gaining ground in the past two decades all over the world. A few Latin American countries, Iran and some African States of late have experimented with massive programmes of adult education and literacy, and have achieved varying measures, of success. Cuba and China have taken a great leap forward to achieve stunning results. Of course these two countries had the power to enforce their decisions. Cuba suspended for a period all formal educational activities to achieve almost 100% literacy. China wove its literacy activities into the very life and work of the people. Every one everywhere was compelled to play a national game: writing Chinese characters (alphabets) and displaying them to those who have not yet begun.

India is the first democtratic country to launch a national programme for eradication of illiteracy among the adults on a massive scale. We have had sporadic attempts at this effort and a few literacy campaigns since independence. Eradication of illiteracy had been a cherished hope of Gandhiji who was as devoted to this cause as he was in his campaigns against untouchability. State Governments have been launching programmes of adult literacy but their efforts have always been half-hearted. Allocation of funds for adult education has been insignificant and even these small sums remained unutilised. The very little amount of work done resulted only in providing figures for records and claims to success. Yet education is provided the largest share invariably in all State budgets. Our literacy drives have failed and we realised that our literacy programmes were lacking in essentials and were unimaginative. A new approach is to be devised for sustained participation by the learners.

The number of illiterates in our country kept registering a steady increase although the percentage of literacy in the country has also been uniformly increasing. The gains in literacy were lost through our failure in slowing down population growth particularly among the illiterate masses. The following table furnishes the actual census figures since the year 1951.

Year	% of literacy in the country	Number of illiterates (in crores)
1951	19.26	17.30
1961	27.76	18.70
1971	34.08	20.95
1977 (estimates)	38.00	22.65

Efforts at eliminating illiteracy

(a) *Farmer's Functional Literacy Programmes*

Sixty centres in each of the 144 selected districts in the country (1977-78).

This programme which started originally with the intention of popularising and promoting "Green Revolution" and the use of improved strains, seeds fertilizers etc. is a programme of the Government of India in collaboration with the State Departments of Agriculture, Animal Husbandry and Education. The programme claims to have achieved notable success. An evaluation of this programme has recently been carried out by an official team of experts and the report is awaited.

(b) *Non - formal Education for illiterates in the age-group 15-35*

100 centres per District.

This is a joint venture with central government funds. The Education Department of the State runs these centres, teaching being done by school techers usually in the evenings. Each centre is for 30 learners and the teachers are paid an honorarium of Rs. 50/- per month. Non-formal pattern of education is being imparted, literacy forming a part of the curriculum. It is found that attendance at these classes is not quite satisfactory.

(c) *Education for drop-outs in the age-group 6-14*

This out-of-school education for children is reported to be quite popular. Attendance is invariably more than the allotted strength. There are cases of children leaving the formal schools and attending these evening classes. There are children who attend formal schools by day and the non-formal education centres in the evenings.

(d) *Non-formal Education through University students.*

A part of the work done by NSS volunteers is running of literacy classes and Non-formal Education Centres.

(e) *Education through youth organisations.*

The Nehru Yuvak Kendras, through out the country, as part of their development programme, run literacy centres.

(f) Literacy classes and Non-formal Education by Voluntary organisations.

Accepted as best suited for imparting non-formal education, voluntary organisations have to their credit a long period of literacy work.

National Adult Education Programme

With the launching of the Sixth Plan, the Government of India have announced their policy statement on Adult Education. Highest priority in Educational planning is given to universalisation of Elementary Education and to Adult Education.

The following aspects are underscored:

(a) Illiteracy being a serious impediment to an individual's growth and to the country's socio-economic progress, the programme will be linked to the needs of the learner and to his environment.

(b) Participation by beneficiaries in all sectors of development.

(c) The poor can rise to their own liberation literacy, dialogue and action.

(d) Organisationally the programme has to be

- (i) flexible: (time, duration, location, etc.)
- (ii) diversified: (curriculum, materials and methods)
- (iii) decentralized: (planning and implementation)

Salient features of the NAEP

The programme is intended to convert illiterates in the age-groug 15-35 into literates. From the 1971 census figures, it is estimated that the number of illiterates in the country in this age-group is 98.2 millions. It is likely that this figure will be 100 millions in 1977. These 10 crores of illiterates will be covered under this programme in a period of 10 years. The period was later shortened to 5 years. In its final form this programme is budgeted to involve 6.5 crores of these illiterates within a five year period. As far as Tamil Nadu is concerned, it would mean that 64.40 lakhs of illiterates in the age-group 15-35 should be made literate in 5 years.

A group of experts from the Planning Commission and the Ministries have worked out the per learner cost as Rs. 57.00. This cost is worked out on the basis of enrolment and not on the number of learners who will successfully complete the course. Assuming that two thirds of the number enrolled will be finishing the course, the per learner cost will be around Rs. 70.00. Costs of the Central and State Governments in administering this programme and the cost of evaluation and researcn at 10% and also the cost of follow-up programmes at about 20% will have to be provided for. The whole programme will be phased, beginning on a modest scale in 1978-79 (preparatory year) and reaching out to its full dimensions in the final year 1982-83. The phase programme is given below:

Year	Target population (in lakhs)		Outlay (in crores of Rs.)
1978-79	15		11.55
1979-80	45		34.65
1980-81	90		69.30
1981-82	180		138.60
1982-83	320		246.00
	650	(say)	500.00

The implementation of the NAEP is to be carried out through various agencies; by extending existing programmes and by introducing new elements.

Farmers Functional Literacy Programmes (Central Government).

Non Formal Education Centres (for adults & children) (Central & State Government).

Voluntary organisations.

Shramik Vidyapeeths.

Student groups and Universities

Nehru Yuvak Kendras.

State Plans.

For the first time the Government have come forward to seek the cooperation of voluntary agencies in implementing NAEP. The aid proposed is generous (75% of administrative costs and 100% of project/field costs). The organisations need not be existing and doing field work. Newly registered organisations and even small rural groups can avail themselves of the proposed aid. In Tamil Nadu the task of creating and guiding organisations and coordinating their project proposals is left to the Tamil Nadu Board of Continuing Education. The response of the voluntary agencies to the Government proposals is so far very encouraging and the coverage by voluntary organisations is expected to exceed the estimates.

Preparation

The preparatory work started a year ago with the setting up of State Resource Centres. Since then a National Board of Adult Education has been constituted. The State Resource Centres, most of them sponsored by voluntary agencies, have done some work, though not adequate, on preparation of materials, curriculum formation, and resource build-up of personnel. Seminars, workshops and training of literacy and Non-Formal Education instructors have been conducted at State and National levels. Arrangements for the training of project officers are under way. The climate for launching the programme is also being created. But in spite of these preparations, there is still a lingering fear regarding the success of literacy programmes.

Operational misgivings :

Adult literacy classes have always been *unpopular. Drop outs from such classes* have been as high as 80% . Even when incentives were given, the improved attendance remained sensitive to the *nature of the incentive offered.* Snacks were often provided; cash incentives for attendance ensured full attendance but slowed down the rate of literacy in-take. *In industries, however, cash rewards and* bonuses, increments in pay and job confirmation ensured high attendance and also quick literacy attainments.

The main causes cited for drop-outs from non-incentive literacy classes are the following

1. Unsuitability of hours of work. (Physical adjustment)
2. Uninteresting classes (methodology *and teaching techniques*)
3. *Learning is not related* to learner's life and work (functional literacy)
4. Attainment of literacy does not improve economic status (work based education).

Motivation:

5. Social status is based more *on caste, political and financial* power than on education (creation of awareness leading to action.)
6. A state of inertia resulting *from longstanding habits,* lethargy, resistance to change.
7. A state of bliss born out of ignorance.
8. A state of resignation to one's 'lot' and satisfaction out of *small pleasures in preference* to hard work and the resulting liberation.

The order in which the causes are listed above also indicated the order of increasing difficulty in taking remedial actions; and the reverse is the order of priority as far as the remedial actions are concerned.

Motivation :

The term 'proper motivation' is frequently used as if it is a tool readily available whenever required. On the other hand, a successful motivation *provides the answer to all major problems* in literacy ventures. Programmes fail for want of suitable motivation; and the motive force is not easy to identify or *isolate.* The *motivator is a person who* has the qualities of a "counsellor". He is a person who is capable of listening (a tough job indeed!), capable of feeling *with others (empathy) and emotional* involvement with the learners and the community he intends serving. He is a person who does not judge nor offer *advice. He does not lead so that he may* create leadership in others. He is just that unsettling force that converts the potential into the dynamics. If such a *person can be found, we have* solved the problem of drop outs.

The goal :

Literacy without attendant development of the human personality is a wasted *exercise.* Through a process of conscientization and sensitisation, the individual is released from his shell and is made aware of his own self and his *environment.* He interprets his environment in the light of his awakening from the plane of a liberated person. He can now solve his problems and he is in a position to engage in dialogue and take needful actions towards a useful and purposeful life.

Summary of Discussion

In the discussion of the paper at the Seminar held in the seminar room of the Institute on Thursday, 27th April 1978, under the Chairmanship of Mrs. S. Nityananda, Madras Institute of Development Studies, the chairman referred to the evolution of the global approach to the elimination of illiteracy, commencing with the UNESCO sponsored conference at Teheran in 1965. Since then problems and target groups have been identified, instruments and learning materials developed in accordance with local requirements and we are now ready for a determined and sustained effort to wipe out illiteracy. She said that the author with his considerable insight and experience in the field of adult education would be able to picture the major problems faced by vouluntary agencies in this regard.

The author presenting the paper, stated that fundamentally an illiterate is not merely a person who cannot read and write, but a person who does not have a constructive awareness of the environment in as much as it concerns his welfare and is not able to communicate with the world. From this point of view, the 1971 census definition of a literate is to be considered as misleading. He also pointed out an anamoly that in the country, while the literacy percentage has risen the number of illiterates has increased. The main programmes aimed at eliminating illiteracy are (a) Farmer's Functional Literacy Programmes, (b) Non-formal Education for Illiterates in the age-group 15 to 35 years, (c) Education for the drop-outs in the age-group 6 to 14 years, (d) Non-formal Education through University students, (e) Education through Youth Organisation and (f) Literary classes and non-formal education by Voluntary Organisations. These efforts have not made an appreciable dent in reducing the number of illiterates. The Government of India have accorded special priorities to universalisation of elementary education and adult education in their VI Plan. The National Adult Education Programme (NAEP) covers the age-group 15 to 35, which is to be implemented over a period of 10 years—now reduced to five years. The number of illiterates in this age-group in the country was estimated to be 98.2 millions in 1971 and a 100 million in 1977. The cost per learner in this programme is estimated to be Rs. 57 per enrolled learner and the phased outlay over the 5 years is projected at Rs. 500 crores. The important features of the NAEP are its link with the needs of learners and his environment, particiption by beneficiaries in all sectors of development, with opportunities for all beneficiaries of evolving patterns of liberation, dialogue and action. Organisationally the programmes are to be flexible, diversified and de-centralised. The implementation of the programme is to be carried out by various agencies like the Farmer's Functional Literacy Programmes, under the aegis of the central government, Non-formal education centres for adults and children, Voluntary Organisations, Yuvak Kendras, Shramik Vidyapeeths, etc. For the first time generous aid is being extended to the voluntary agencies involved in adult education. In Tamil Nadu these activities are being co-ordinated by the Tamil Nadu Board of Continuing Education. The operational misgivings that were

experienced were the high drop-out rates and the fact that literacy was not so popular as expected. Cash incentives for attending classes ensured attendance but slowed down progress. An analysis of causes for high drop out rates shows that in many cases the hours for instruction were not suitable, methods and teaching techniques were not attractive and learning content was not relevant to the learners' life and work. Further literacy did not apparently improve economic or social status of the persons concerned. The more deep seated obstacles were the mental attitudes of the illiterates, lethargy, ignorance and a general state of resignation. The author cited a personal experience in this connection, in which he offered persons free training in weaving and only one turned up. These causal factors can be cured only by a long term campaign of proper motivation.

In the discussion that followed emphasis was laid on the method of approaching and implenting non formal education through dialogue and action on immediate problems of a selected area—such as land tenure, water supply etc. It was observed that the paper reflected experience and information of the author in the field of education. The NAEP is based on certain assumptions, for example educated persons find education good for attaining improved levels of living. The programme seems to be projecting this assumption which is the experience of educated people. Education of the type available requires considerable leisure to be acquired. Experience also shows that high literacy levels have not been achieved without such leisure. Moreover, in any village an entertainment would attract a much larger crowd than an education programme which would involve hard work. A very serious doubt which arises in the context of adult education is whether the literate adults will continue to accept passively the existing inequalities, social and economic. The programme of adult literacy is aimed at some functionality such as land reforms, artisan training, better technology in agriculture etc. The crux of the problem lies in the integretion of the educational element and functional component. A minimum of 300 hours has to be spent for an illiterate to become literate and functional literacy would, perhaps, take more time. Hence it is possible that the time envisaged in the programme for the target groups to be rendered literate is an underestimate. An opinion was expressed that the vision of wholly literate India could not be realised without some form of compulsion as in a communist country. It was pointed out that out of the 17,000 villages in Tamil Nadu, only those villages which are easily accessible from urban centres have been covered by literacy programmes and the interior village have scarcely been touched. It was felt that Voluntary Agencies would be more effective in this area which requires sustained contact—an instance being the American Peace Corps. It has to be remembered that in formulating education programmes the basic concept to be taken into account is "man and society". The existing social structures are feudal and capitalistic. Further, education is visualised in terms of earning capacity—from the high school level to the high research level. A society with the minimum disparities between workers and non-workers can be described as the ideal society. But the reality is 80 per cent illiterate and 20 per cent affluent and educated. Hence there is need fo

further analysis of the nature of this problem such as analysis should not be limited to the 80 per cent poor but must cover also the affluent 20 per cent. A query was raised whether there was greater keenness in urban population for literacy as compared to the rural sector. An additional constraint is the suspicion with which the rural folk regard an organised urban body trying to impose literacy on them. It was thought that a possible approach to adults target groups in rural areas would be through entertainment programmes. Another possible method would be through political cadres. Even though illiteracy may be high, it is seen that cultural activities like dramas, folk dancing and music are not restricted. A reference was made to a MIDS ongoing study in which contrary to prevalent impressions, disadvantged sections of rural society showed keenness in acquiring literacy.

There was general agreement that the problem of illiteracy should not be tackled in isolation, but as part of a general thrust for the development of a just and egalitarian society.

* * * *

The seminar congratulated Dr. Malcolm S. Adiseshiah, Director of the Madras institute of Development Studies on his nomination to the Rajya Sabha.

The Third World's Development Needs *

The future of the Third World depends on (a) the goals, values, the growth patterns and the development trends adopted by each of the Third World countries, (b) the inter and intra Third World relationships of co-operation, competition and mutual help, (c) the inter and intra industrialised countries' relationships planned as in bilateral and multilateral arrangements including common markets or unplanned but carefully regulated as completely by the so-called market mechanism, and (d) the policies and relationships established and operated again on the basis of planned strategies as in the UN decades or World Bank/IMF programmes or through the regulated market forces by the industrialised countries in regard to the Third World.

This quadri-polar futuristic profile of the Third World countries can be charted by (a) using the projection method, that is by projecting into the future the present (and in some cases past) trends, and/or (b) setting future goals, values and targets and tracing the lines of movement towards them. These two methods of visualising the future are distinct and somewhat contradictory, the first being deterministic and the second autonomous and freely willed. But there is also a certain degree of commonality as between the two methods in that there is a determining (at least the early beginnings of a determining) conceptual frame for the present and future in the trend of moving from a relationship of inequality to equality, from an ethos of injustice to one of justice.

The Third World model of Development is moving from the borrowed one of growth with social injustice and inequalities to one of placing the major emphasis on mass participation and more equal sharing of the fruits of development. By 2,000 A.D., this would mean for the Third world countries, completion of the land and agrarian reform movement (in place of the present 10 to 12 per cent of rural households owning 40 to 60 per cent of the cultivable land) and a more equitable distribution of industrial and financial assets through public sector enterprises occupying the key, core and commanding sectors of the economy and producing or providing the industrial infrastructure for the production of essential goods and services needed by the deprived rural masses. In turn this would involve rather drastic changes in the social

*Extracts from a paper by Dr. Malcolm S. Adiseshiah.

structure, replacing the traditional barriers of race, caste and other rigid and inflexible communal and ethnic relationships by one of free and equal participation of everyone in all decision-making processes and networks. All aspects of society—education, health facilities, cultural action, and information flows and diffusion—will share in this structure and ethos of growing equality and justice. And the task now enjoined on the Third World countries is to undertake the necessary national and local action—by legislation, by executive decree, and voluntary agencies decisions to work inexorably to bring about the changes—political, economic, social and cultural—in the two decades that lie ahead of them to move towards this model of development.

There is a large and as yet unexplored area of inter and intra Third World cooperarion in developing their futures. So far the emphasis has been on their competitive and in some cases antagonistic relations, as in the relations between the countries of Asia, and Africa, West Asia and Latin America where the emphasis has been on their economies being in opposing relationship to each other. In the coming two decades, the new area of cooperation would be in (a) their forming sub-regional groupings along lines of the 15 groups indicated in the Leontief study in order to establish and operate both heavy industry enterprises and such intermediate and consumer goods outputs that are now imported by them from the industrialised countries (b) using the technology and technical know-how developed by some of them both in the sophisticated areas like electronics, fertilisers, engineering and chemical industries as well as in rural development activities including those of labour intensive technologies, small industries and cottage handicrafts in which they have the expertise not available to the industrialised countries in order to cooperate with other Third World countries in their industrialisation plans and (c) developing an educational cultural, information structure suited to the conditions—human, social and cultural—of the people of the Third World, instead of operating the falling, failing, exploitative and distorted education and information system of the industrialised lands. In developing these areas of cooperation, they will face various obstacles and obstructions both from their own traditions of war and antagonisms as seen in the awesome fact that wars, after the Second World War, are confined to the Third World, and from the industrialised countries, as seen in the heavily subsidised and fiercely competitive postures adopted by the latter when facing any form of Third World cooperation. In the two decades ahead, these constraints must be forecast and overcome by the Third World.

The future of the Third World also depends on the relationship between and among the countries of the industrialised world. At present these relations are based on sharing among themselves over 90 per cent of the world's industrial production, 80 per cent of world trade, and about the same share of the world's exportable agricultural foodgrains production. This means that in the coming two decades, this inequitable system of the so-called international division of labour under which this predominance of the industrialised countries is assured in all spheres—political, military, agricultural, food production, manufacturing industry and exports—will have to be controlled and modified and not left to

the operation of what is euphemistically called the free and autonomous forces of the market. There will have to be an opening up of the closed trading blocks of the industrialised economies represented by EEC and to some extent by OECD and COMECON and some self-imposed voluntary ceilings on the accelerated rates at which the world's non-renewable resources are being consumed and depleted. In this sense, the various messages of the Club of Rome are addressed to the industrialised countries and that message needs by agreement among them to be translated into policies and programmes now.

Finally, the future of the Third World depends on the relations between it and the industrialised group. This future desirable relationship has been set forth in the total system known as the New International Economic Order, which is an order based on justice, equality and self-reliant inter-dependence. Its main components have been clearly set forth as comprising (a) a move towards the Third World countries producing 20 per cent of the world's industrial production, (b) the financing of buffer stocks and resulting price stablisation of the primary commodities on which the incomes of the poor masses of the Third World depend, (c) the easing of trade and tariff barriers by the industrialised countries, (d) the rescheduling and lightening of the international debt burden of the Third world countries, (e) the increase and improvement of the quantity and quality of aid, (f) a system of international liquidity in which the Third World has an equal voice to that of the industrialised countries, (g) the cutting back on armament expenditures and using its technology and infrastructure to forecast such elemental needs as weather and climate and mapping the world's resources more acurately, and mounting an effective campaign against the growing income gap between the poor Third world countries and the rich industrialised ones. This would speed up the Leontief aggregative prediction of halving the present discrepency by 2000 A. D. under his preferred 15 region 45 sector model. All this is well-known. Now what is needed is the realisation that time is not on the side of peace, justice and equality, that in the remaining two decades, policies, strategies, instruments and programmes be forged by each country and by the international community to attain the future envisaged for the Third World and that this future be seen as a total system in which the particular pressing individual problems such as disarmament, population, water, energy, pollution etc. be seen as ineluctable parts of a total system based on justice and equality, and not be treated either in isolation or in a manner to act as diversionary red herrings from the hard and difficult choices and the fight to attain them that is ahead of each of us and the international community.

THE EIGHTH CENSUS OF SOCIAL SCIENCE RESEARCH IN TAMIL NADU 1978

The eighth census (1978) of Social Science Research in Tamil Nadu conducted by the Institute succeeds the seventh census reported in the Institute Bulletin, Vol. VII, Nos. 5 & 6, May-June issue of 1977.

The questionnaire issued in January 1978 was in the same format as in previous years and was addressed to six southern universities, including the Indian Institute of Technology, Madras, two departments of the Government of Tamil Nadu, one Institute of Rural Higher Education, 3 research institutes in the city, 24 colleges and the Directorate of Census, Government of India., Madras. The total number of reports received this year is 136 under 13 different disciplines as against 142 reports under 14 different disciplines in 1977. A tabular statement showing the number of reports under various disciplines during the eight years (1971 to 1978) is given below:

No.	Disciplines	1971	1972	1973	1974	1975	1976	1977	1978
1	Economics	85	42	125	51	41	33	37	33
2	Agricultural Economics and Cooperation	—	—	49	22	18	22	23	27
3	Economic History	—	—	—	1	—	—	2	—
4	Commerce	—	—	5	2	1	2	11	10
5	Education	—	5	2	2	1	5	4	4
6	Criminology	—	—	2	2	3	3	1	—
7	Geography	—	—	1	4	6	12	9	1
8	History	8	8	4	9	16	10	9	10
9	Politics and Public Administration	—	—	1	2	2	—	—	—
10	Psychology	31	11	14	12	15	15	10	11
11	Social work	—	5	7	6	8	6	1	10
12	Sociology	7	4	2	6	2	6	3	6
13	Anthropology	3	—	—	—	—	1	—	—
14	Home Science	44	36	—	—	—	—	29	19

S. 2

No.	Disciplines	1971	1972	1973	1974	1975	1976	1977	1978
15	Linguistics	—	—	56	—	—	1	—	—
16	Demography	—	—	—	—	1	3	2	—
17	Town and Country planning	—	—	—	—	v2	—	—	—
18	Multidisciplinary	—	—	—	—	1	—	—	1
19	Philosophy	—	—	—	—	1	—	—	2
20	Physical Education	—	—	—	—	—	1	—	—
21	Others	—	4	2	—	—	—	2	2
	Total	178	115	270	119	117	128	142	136

It will be seen from the statement that, like previous years, the number of reports is highest in Economics this year also (33). Agricultural Economic with 27 reports is a close second. Under Home Science 19 reports have been received. There are 11 reports in Psychology, 10 reports each in Commerce, Social Work and History and 6 reports in Sociology, 4 in Education, 2 each in Philosophy and "other" disciplines and 1 in Geography and 1 in Multidisciplinary study. Two Nil reports have been received.

Out of the 136 reports, 105 are degree oriented, representing 77.2 per cent of the total number of research studies—32 for the Ph. D., and 73 for the M.Sc., M. Com., M.A. degrees, 2 for diplomas and the other 29 are sponsored by the *Institutes/Colleges in which the studies* have been undertaken. The idea of undertaking research studies apart from those leading to academic degrees is to be encouraged—and in view of the stress on rural development, departments of various colleges and individual research workers attached to the colleges should devote attention to research work on improved and increased data and information leading to their analysis which would help policy decisions and implementations, for rural areas of the southern region. The near absence of ICSSR sponsored research in the State is noted with regret. Now that according to the present M.Phil degree regulations, a dissertation is a must, the total number of reports received shows that a number of colleges have not given reports. Two responsibilities which arise from these regulations are: (1) an institution can by coordinating the dissertation work formulate a scheme for the complete socio-economic study of a chosen area and (2) can plan an interdisciplinary study of a theme like poverty or unemployment restricted to a chosen region.

From the pattern of reports received, a major aspect which arises and which may be stressed again is the need for fundamental research in at least some of the disciplines. The Institute, through its meetings of the Heads of Departments of Social Science Departments, has been continuously advocating the need and advantages of interdisciplinary studies in social and economic problems. Further

efforts have to be instituted in colleges and universities to further this method for study of various problems.

Reports on research work have been received only from 14 institutions. The significance of such a census is not yet generally recognised by the social science community. If further cooperation is extended by all social scientists this census can become of great value to research workers and supervisors and particularly in the formulating of a five year plan in each college for research work in Social Sciences which could then be coordinated for the Southern Region.

ECONOMICS

Sri Meenakshi Government College for Women, Madurai.

1. The impact of Industrial Estates on the economics of Madurai-Ramnad Districts.

To ascertain how far the Industrial Estates in these two districts have created an impact on their economic development and how far the set up of the Industrial Estates have benefited the local entrepreneurship.

Primary data collected from the Industrial Estates are tó be analysed with a production function to know the rate of development and the impact created in these two districts. The theoretical study about the Estates will be supplemented by the practical analysis.

Commencement	July 1973
Completion	July 1978
Degree	Ph. D.

Madurai University, Madurai.

2. The handloom industry in Madurai City and its potential for development.

To study the handloom industry in Madurai city including its past history. Its potential structure and economic prospects and its potential for development in terms of investment, growth and employment.

Stratified sampling frame is proposed because of the heterogenety among the units—cooperatives, individual weavers and master weavers.

Commencement	1-1-78
Completion	31-12-78
Degree	NIL

A study by the Department of Economics.

3. Study of market structure for sea fish in Madurai city.

To study the supply, marketing and consumer demand by ascertaining details of sources of origin, transport, species and varieties according to seasons, whole sale contractors (number and capacity), retail sales, cycle retailers, bulk consumers such as hotels, etc, and individual consumers of affluent and low incomes.

The study is mainly descriptive. Survey method used to collect data.

Commencement	1-1-78
Completion	31-3-78
Degree	NIL

A study by the Department of Economics.

4. Economics of cropping pattern of Kanyakumari District – a case study. To examine the effect of the recent change, in the cropping pattern of the district on the various size groups of land holders.

Multistage stratified random sampling.

Commencement	Oct 1977
Completion	Oct 1979
Degree	Ph.D.

Madras Christian College, Tambaram.

5. Productivity and technical change in Indian Industries.

The study was an attempt to measure and evaluate productivity and technical change in 23 large scale Indian industries taken from CMI and ASI between 1945 and 1968.

The relationship between productivity and technical change at the most dis-aggregated level possible was examined by using the method which combined Salter's (Productivity and Technical change 1966) proceedings and the Reddaway and Smith (Progress in British Manufacturing Industries in the period 1948–1954) E.J. March 1960 method.

Firstly from the study it appeared that only uneven technical change and economies of scale (and not personal efficiency of labour) could explain the pattern and relationships observed in Indian industries. Secondly, the technical change in Indian industries was not neutral but capital biased. Thirdly the technical change in Indian industries was of the embodied type.

Commencement	Jan 1971
Completion	April 1975
Degree	Ph.D. (Awarded)

6. Urbanisation and economic change in Tamil Nadu.

Reported in Bulletin, 1977, Vol. VII, Nos. 5 & 6 pages S.4

7. A study of financial flows in Tamil Nadu.

To study the intersectoral flow of finance in the state economy and the factors causing change in the financial structure.

Flow of funds matrix method used.

Commencement	July 1977
Completion	—
Degree	M.Phil

8. Econometric study of electricity industry—Pricing of electricity.

Methodology to be evolved.

Commencement	Oct 1977
Completion	1981
Degree	Ph.D.

Scott Christian College, Nagercoil

9. Variations in agricultural wages.

The study covers inter-regional wage differentials with special reference to the southern districts of Tamil Nadu and wage variations in respect of crop varition, operational variation, contractual variation, etc. To make it comprehensive employment and debt position of agricultural labourers also would be examined to the extent they infleuence the wages. For the analysis, statistical techniques like sampling, regression analysis etc used.

Commencement	July	1976
Completion	July	1981
Degree		Ph.D.

Indian Institute of Technology, Madras

10. Manpower planning at the enterprise level.

To develop a manpower model to suit Indian Industries.

By interview, questionnaire and survey.

Commencement	Jan	1977
Completion		—
Degree		Ph.D.

Gandhigram Rural Institute, Madurai.

11. An inquiry into the socio-economic conditions of Beedi workers in two factories in Salem.

To find out the economic conditions of the Beedi workers in terms of employment, income, consumption, expenditure, savings, and indebtedness and understand their social conditions particularly in terms of caste, education, housing, family and group life.

Survey method was followed. Interview *schedule technique adopted to* collect data from a randomly selected sample unit of 60 out of 150.

Commencement	Sept.	1976
Completion	March	1977
Degree		M.A.

Madras Institute of Development Studies, Madras.

12. Educational profile of jobs in Tamil Nadu.

Reported in Bulletin, 1977, Vol. VII, Nos 5 and 6 page S. 9.

Under print.

13. Unemployment among ITI graduates.

Published.

14. Link road investments in Tamil Nadu.

Published.

15. Possibilities of crop rotation in *Thanjavur district.*

Reported in Bulletin 1977 Vol. VII Nos. 5 & 6 Page S. 9.

16. Mechanisation in Agriculture in Tamil Nadu.

Reported in Bulletin, 1977, Vol. VII Nos, 5 & 6, Page S. 9.

17. Economics of sugar cane cultivation in Tamil Nadu.

Reported in Bulletin, 1977, Vol. VII Nos. 5 & 6 Page S. 10.

18. Commercial cultivation of vegetables in Tamil Nadu.

Reported in Bulletin, 1977, Vol. VII 5 & 6 Pages S. 10.

19. Tribal Welfare in Salem District and

Published

20. Tribal Welfare in Kalrayan Hills (mimeographed) Published.

21. Paddy and Rice Marketing in Northern Tamil Nadu.

A study by Mrs. Barbara Harriss being published by the Institute.

Annamalai University, Annamalai Nagar.

22. Fluctuations of land values in Chidambaram taluk during the last 40 years.

Report in Bulletin 1974, Vol. Nos 5 & 6 Page S. 4

23. Incidence of agricultural taxation in Tamil Nadu.

To study the incidence and ratio of different agricultural taxes (land revenue, local cess, commercial cess etc) to net out put.

By using the technique of purposive sampling five villages each selected from districts and 40 land owners from each of the villages. Field survey using the personal interview method employed for data.

Commencement	Sept. 1975
Completion	1979
Degree	Ph.D.

UGC Followship.

24. Organisation and working of Theni cotton market.

By field survey.

Commencement	10-10-77
Completion	July 1978
Degree	M. Phil

25. A study of the export orientation of the handloom products through co-operatives in Tamil Nadu.

To find out the various problems faced by cooperatives in export of handloom products and to assess the various measures taken to solve the problems.

By secondary data available with the Handloom Weavers co-operatives Society and Export Promotion Council

Commencement	5-10-77
Completion	July 1978
Degree	M. Phil

26. A study of the tenure system in Kodaikanal Region, Madurai District.

To study the efficiency of resource use under tenure at Kodaikanal which is a special feature for potato cultivation.

By random stratified sampling 50 samples chosen and a special questionnaire prepared.

Commencement	10-10-77
Completion	July 1978
Degree	M. Phil

27. Problems in placement of educated unemployed graduates in Pondicherry.

To find out the economic aspects of the cost and method of searching for jobs, period of waiting, cost of leisure foregone and prospects of self-employment.

Respondents selected by random sampling to be interviewed with a questionnaire.

Commencement	Nov. 1977
Completion	October 1978
Degree	M. Phil

Sponsored by the Faculty Improvement Programme of UGC and the Government of Pondicherry.

28. Unemployment problem among educated women in Chidambaram.

To study the causes for unemployment of educated women in Chidambaram, the cost and method of search for jobs, the cost of leisure etc.

Survey method employed using questionnaire for interview.

Commencement	5-10-77
Completion	July 1978
Degree	M. Phil

29. Micro level planning for development of Karaikal region.

To identify growth centres in a hierarchy for economic development of Karaikal region, both existing and potential and to develop multiple index for measurement of centrality and to apply the same to identify the regions and settlements for development.

Commencement	10-10-77
Completion	July 1978
Degree	M. Phil

Sponsored by the U.G.C. Faculty Improvement Scheme and the Government of Pondicherry.

30. Problems in housing the middle income groups in Purusawalkam area, Madras.

To analyse the various problems regarding housing the middle income groups in Purasawalkam, particularly the per capita space available, demand and supply of housing, income spent on housing, etc.

By field survey method selecting middle income group families by random sampling.

Commencement	1-10-77
Completion	July 1978
Degree	M. Phil

31. Working of State lotteries in India.

To study the origin and evolution of State lotteries, laws and rules formulating lotteries and an economic appraisal of State lotteries.

By field survey method.

Commencement	Nov. 1977
Completion	July 1978
Degree	M. Phil

32. The economy of the Sri Ranga-nathaswami temple.

To study the shifting fortunes of Tamil Nadu temple finances consequent on the implementation of land reform measures.

By analysis of the revenue and expenditure of the temple during the last 10 years.

Commencement	5-10-77
Completion	4-10-78
Degree	M. Phil

33. A study of the organisation, functions and finance of Mannadepet Commune, Union Territory of Pondicherry.

To evaluate the working of the process of democratic decentralisation at the Panchayat level.

By statistical analysis of revenue and expenditure of the Panchayat tax effort, elasticities, buoyance and sensitivity.

Commencement	4-10-77
Completion	4-10-78
Degree	M. Phil

AGRICULTURAL ECONOMICS AND COOPERATION

Tamil Nadu Agricultural University, Coimbatore

34. A study on the economics of forest plantation in Pudukkottai District.

To measure the income and employment likely to be generated per hectare of forest land devoted to different species of trees, to test the economic feasibility and financial viability of investment in plantation crops and to estimate the unit cost of paper produced by using eucalyptus wood as the pulp wood and unit cost of production of cashew kernels.

Pudukkottai district was purposively chosen and economics of cashew, casuarina and eucalyptus plantations worked out. The employment of human labour generated per hectare by these activities are:—cashewnut-150 days for establishment of plantation plus 50 man days annually for maintenance. 275 man days for felling plus 6 man days for establishment plus maintenance.

Casuarina-218 man days for establishment plus 145 man days for felling plus 7 man days annually for maintenance.

Commencement	Oct. 1976
Completion	June 1977
Degree	M.Sc. (Agri.)

35. Planning for integrated rural development in Dharmapuri district.

To prepare integrated resource inventory for the district.

By contacting the Heads of various departments like Agriculture, Cooperation, Animal Husbandry etc. for records. Resource inventory for the district and malady—remedy analysis were prepared.

Commencement	June 1977
Completion	August 1977
Degree	NIL

Financed by ICAR, New Delhi.

36. Problems and prospects of sericulture in Coimbatore District.

To examine the potentialities of expanding sericulture in Coimbatore and to identify the constraints if any in its large scale adoption and to evaluate the costs and returns.

Study was conducted in Avinashi, Coimbatore, Gobi, Palladam, Udumalpet and Pollachi taluks in sixty farms. It was found that the average yield was about 900 Kg of cocoons yielding a net income of Rs. 10,000/- per hectare. The production cost was a little over Rs. 15/- per Kg of cocoons. Sericulture creates employment for over 600 men and nearly 830 women per hectare.

Commencement	Aug.	1976
Completion	December	1977
Degree		NIL

A study by Department of Agricultural Economics.

37. Economics of milk production and pattern of milk consumption around Madurai.

For computing unit cost of production of milk and examining pattern of consumption of milk and milk products by Madurai city population.

Nine co-operative Milk Supply Societies representing urban, semi-urban and rural areas and 100 milk producers selected at random were contacted. The cost of production per litre of milk for desi cows worked to Rs. 1.03 in rural areas, and Rs. 1.19 in urban centres. In the case of cross bred cows it was Rs. 0.89 and Rs. 1.14 respectively.

Commencement	Oct. 1976
Completion	June 1977
Degree	M.Sc. (Agri.)

38. A study on economics of egg production and marketing in Coimbatore taluk.

To estimate the cost of production of eggs, to identify the market structure and to study the price spread.

50 poultry units, 8 wholesalers, 7 retailers, 8 egg collectors in Coimbatore taluk, were contacted. The cost of production of 100 eggs ranged from Rs. 25/- to Rs. 32/- depending on the flock size. Of this, the variable costs accounted for more than 80 per cent. The gross return per 100 eggs ranged from Rs. 38/- to Rs. 41/- and net return was Rs. 8/- to Rs. 12/-. The producer obtained over 80 per cent of the consumer's rupee if marketed through wholesalers.

Commencement	Oct. 1976
Completion	Sept. 1977
Degree	M.Sc. (Agri)

39. A study of socio economic dimensions for planning Integrated Rural Development of Dharmapuri District.

To study the socio-economic structure of households, the pattern of income consumption and income distribution and to explore the possibilities of generating additional employment opportunities.

In the 16 blocks of Dharmapuri district two clusters each were identified and 6 villages were chosen. In each of the selected villages 30 households were chosen, making a total of 2,880 village households which were interviewed. It was found that the per capita income of the household was Rs. 35/-, the literacy level 27.50 per cent and only 24 per cent of the people eat twice a day with ragi kali with tamarind water.

Commencement	April 1977
Completion	June 1977
Degree	Nil

A study by the Agricultural Economics Department.

40. Study on marketing of pesticides in Sulur Block of Coimbatore district.

To identify the customer characteristics and pattern of pesticides use, to study the levying behaviour of pesticide users and to examine the marketability of pesticides.

Thirty pesticide user-farmers, ten non-user farmers and one pesticide dealer were randomly selected in 5 villages of Sulur Block and interviewed. A significant association existed between the literacy standards and attribute of a farmer being a user or a non-user. About 57 per cent of farmers reported that they have known the schedule of plant protection recommendation of crops they have grown. Farmers preferred emulsifiable concentrates and wetable powder formulations. The main sales promotional work was carried out by the dealers terms of credit facilities, close contact and field visits.

Commencement	Jan. 1977
Completion	October 1977
Degree	Diploma in Agricultural Business Management.

41. Study on pattern of management in dairy business.

To identify the dairy management practices, to study the extent of adoption of different management practices such as feeding management, health management, breeding management etc. and to identify the problems encountered.

Three milk socieities randomly chosen and forty milk producers were contacted. Under feeding of milch cattle was common. Level of education had significant relationship with adoption of management practices and in adequate finance was a constraint.

Commencement	Jan. 1977
Completion	July 1977
Degree	Diploma in Agriculture Business Management.

College of Rural Higher Education, Coimbatore

42. A study of the problems of the weaker sections in availing the services from the Development Agencies including co-operatives.

To study the socio-economic characteristics of the weaker sections, to investigate into the nature and extent of their problems in securing the services of Development Agencies in the selected areas and to find out the relationship

if any, between their problems and their socio-economic characteristics.

In a multi-stage sampling model Veerapandi block in Salem District was purposively selected.

By random sampling one revenue village and by lot method two hamlets out of 6 in the village were taken for a quick survey to identify the weaker sections *viz* small artisans and marginal farmers. Then by using the stratified proportionate random sampling method 100 respondents were selected from the 4 categories. Two schedules, one for quick survey and another for the respondents were used for collection of data by field survey and interview.

It was found that the majority (60 percent) of the weaker sections socio-economic conditions were poor and the agricultural labourers' conditions were very deplorable. Among the four development agencies viz. SFDA, Credit Society, Land Development Bank and Panchayat Unions the role of the first two in the provision of credit facilities has more. The other two agencies have helped only the richer sections.

Commencement	July 1977
Completion	March 1978
Degree	M. Cop.

43. Problems and patterns of admissions and withdrawals of members in the village co-operative agricultural credit societies.

To study the trend in the admission into and withdrawals of members from the selected village cooperatives agricultural credit socieities during 1970–71 to 1975–76, to analyse the socio-economic background of such new member respondents and drop-outs in relation to the permanent members and to identify the causes and circumstances for inclusion of new members or exclusion of old.

By/purposive sampling procedure, societies in Annur block, Coimbatore district were selected and 100 respondents were taken for interview by simple random method. Field survey method and interview technique employed for data collection.

It was found that 85 per cent of the members joined for availing loans mainly. The inability to repay loans largely influenced the phenomenon of dropouts.

Commencement	July 1977
Completion	March 1978
Degree	M. Cop.

44. A study on the impact of the Integrated Dairy Development Scheme in Churnamanur block of Uthamapalayam taluk, Madurai District.

To study the impact of the scheme on economic conditions' such as income, savings etc. of the milk producers; occupational pattern of the villages; knowledge about modern dairy practices, dairy industry itself, live stock feeding and veterinary practices and milk consumption in the villages.

Field survey method and interview technique adopted for gathering data. By documentary study of data collected from the milk producer's society and from the Tamil Nadu Dairy Development, Corpora-

tion, Madurai. Director and two way comparison tables diagrams and charts were drawn to interpret data and 'T' test analyses also used.

A significant impact of the scheme was noted on income, expenditure etc. particularly among landless persons and small farmers than among medium and big farmers. The scheme had impact on employment generation particularly for women; on milk price and there was a reduction in milk consumption by the producers.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

45. A study of the factors responsible for success or otherwise of the Pandiyan Cooperative Supermarket, Madurai.

To study the efficiency of the selected unit with special reference to its purchases, sales, administration, membership coverage etc; to know the extent of members' utilisation and their satisfaction and to identify the specific factors connected with the success or otherwise of the selected unit.

Survey and case study methods and oral interview techniques were adopted. The case study method was confined to ourchase, sales, profit and loss account etc. of the supermaket data for 5 years. Within the Madurai Municipal Corporation one nearer and the other far way from the supermarket were selected to verify whether distance was a factor ffecting members' purchase, opinion etc. hi-square test employed to test relationhip between the services rendered by the supermarket and satisfaction of membe and least square used to estimate th trend of sales and purchase of th supermarket.

The unfavourable location of the supe market was noted to be a reason for the limited level of success. Only afte shifting the super market to the busy centre of the city in 1973 did it earn considerable profit. Administration and other expenses were reduced over the years. 46 per cent of the respondents were satisfied with the working of the supermarket.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

46. A study on the production and marketing of the Potato growers in the Nilgiri hills and the role of the Nilgiris cooperative marketing society in solving such problems.

To study the problems of potato growers in production and marketing of potato to examine the extent of help rendered by the selected co-operative marketing society in solving such problems and to study the relationship between the socio-economic conditions and the production and marketing aids from the society.

Survey method and personal interview techniques adopted. Data of the society was from records. First, two villages were selected on the basis of the total cultivable area. Then 80 respondents—50 members of the society and 30 non members-were selected by stratified proportionate random sampling, stratifying the growers as small, medium and big farmers.

It was found that society had helped the farmers in production by providing disease free seeds, fertilisers, implements etc. at controlled prices and on the marketing side by assured minimum guaranteed price, advance, grading and storage. While small farmers had utilised the production services, the large farmers had used most of the marketing facilities.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

47. A comparative study of conditions and problems of member and non-member weavers.

To study the socio-economic conditions of members and non-members of weavers' co-operative society, the working and problems of the society in improving such conditions and to analyse the production and marketing problems of weavers.

Survey method and personal interview technique were adopted for data collection. About 50 members of the Weavers' society and 50 non-members out of the weavers of Samichellipalayam village, Perianaickenpalayam block, Coimbatore District were selected. Separate schedules for members and non-members were used and methods like 't' test and correlation were employed for analysis of data.

Comparatively the socio-economic status of the members was higher than the non-member weavers.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

48. A study of branch banking and deposit mobilisation by the Tiruchirapalli District Central Co-operative Bank.

To examine the extent to which the branches of the selected central coperative bank were able to mobilise resources and render credit and and banking services to the affiliated societies and customers.

Survey method and interview technique were adopted. The Tiruchirapalli district Central Cooperative Bank, its branches, its members societies and depositors were studied by using separate schedules for the Head office, Branches, member socieities and customers. By stratified sampling procedure branches in agricultural and commercial areas were chosen and primary societies were stratified into agricultural and credit societies and others. The depositors were divided into individual depositors (65) and the institutional depositors (15).

It was found that the branches of the Cooperative Bank have done well, the deposits having increased from 124.23 lakhs in 1971-72 to Rs. 169.08 lakhs in 1975-76.

Commencement	July 1977
Completion	March 1978
Degree	M. Cop.

49. Operational efficiency of a district Milk Supply Co-operative Union.

To study the operational efficiency in collecting, processing and distribution of milk the operational cost incurred in handling and to study the administrative and managerial system of the Union.

Field survey and documentary research methods used. The selected unit was the Kanyakumari Milk Supply Cooperative Union Ltd. 2946, Nagercoil, For individual and institutional members and consumers, simple random sampling using Lippell's method and convenience sampling respecitvely used selecting 20 milk supply socieities and 30 individuals for members and 20 institutional and 30 individuals for consumers. Separate schedules designed for the Union, individual members and consumers and questionnaire for primary socieities used.

It was observed that the Union was efficient in purchasing, processing and distributing the milk during 1971–72 to 1976–77.

Commencement	July	1977
Completion	March	1978
Degree		M. Cop.

50. A study on the production and marketing problems of coffee growers in the lower Pazani hill area and the role of the Pattiveeranpathy co-operative coffee curing society in solving such problems.

To study the production and marketing problems of the coffee growers, to examine the extent to which the selected cooperative society helped them to solve the problems and to study the relationship between the socio-economic conditions and the services availed from the society.

Survey method and personal interview technique used. Data from the society collected from records. Adopting distance criteria, two villages—one nearest and one furthest from the society—were selected. By using stratified proportionate sampling, classifying growers as small, medium and large. 50 members and 30 non-members were selected from the two villages. Data analysed by direct indirect and cross-tables, correlation and 't' tables.

The society had helped its member growers in production by providing fertilisers and pesticides.

Commencement	July	1977
Completion	March	1978
Degree		M.Cop.

51. A study about the impact of Integrated Dairy Development Scheme.

To study the working of the scheme in a village; the impact of the scheme on the economic conditions such as income, savings etc, on the occupational and employment pattern, knowledge about dairy practices, on bredding feeding etc and on milk consumption.

Two villages were selected purposively from Viruthalaipatti, Vedasanthur taluk, Madurai district — one village where scheme has been implemented and one where no scheme existed. 40 individuals each from the two villages were selected using Random numbers table. Interview technique and interview schedules separately for individuals, society and Dairy Development Corporation used for collecting data.

Commencement	July	1977
Completion	March	1978
Degree		M.Cop.

52. A comparative study of the conditions and problems of member and non-member weavers.

To study the socio-economic conditions of member and non-member weavers, the working and problems of weavers co-operative society in improving the conditions of the weavers and to analyse the production and marketing problems of member and non-member weavers.

Ondipudum, a popular weaving centre in Coimbatore district was selected. By applying proportionate random sampling technique, 50 weaver members of the cooperative society and non-members were selected. Separate schedules used for data collected from members, non-members and society.

Comparatively the members and society obtained better wages and higher level of income than non-members.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

53. Problems and pattern of admissions and withdrawals of members in the village cooperative agricultural credit societies.

To study the trend in admissions into and withdrawals of members from the selected village cooperative agricultural credit societies during 1970-71 to 1975-76, to analyse the socio-economic profile of such new member and drop-out member-respondents in member and drop-out member-respondent in relation to the permanent members and to identify the causes and circumstances under which new members were included and old members excluded.

Separate interview schedules and interview guides were drawn up for collecting data from the society, members, ex-members and office bearers. Purposive sampling procedure for selecting societies and simple random sampling used for choosing 100 respondents.

It was found that 90 per cent of the members joined the societies for loans and other services. Inability to repay loans was a main factor for drop-outs.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

54. A study of the problems of the weaker sections in availing the services from the development agencies, including cooperatives.

To study the socio-economic characterstics of the weaker sections, to investigate into the nature and the extent of their problems in securing the services of development agencies in the selected area and to find out the relationship, if any, between their problems and socio-economic characteristics.

Purposive sampling procedure adopted for selecting the village and a quick survey conducted to identify the weaker sections viz small farmers, marginal farmers, agricultural labourers and rural artisants Then by stratified proportionate sampling 100 respondents were chosen. Two schedules, one for the quick survey and another for the respondents were used.

58 per cent of the weaker sections' socio-economic conditions were poor. Of the development agencies i.e. credit

society, land development bank, commercial bank and panchayat union, the role of the commercial bank in providing credit was greater.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

55. A study on income, expenditure, savings, investment pattern of rural households in Tirukoilur taluk.

Field survey and personal interview technique was adopted for data collection and stratified proportionate random sampling applied for section of respondents.

Majority of the rural households (45.8 per cent) earned their income from agricultural labour, 73.3 per cent did not spend any amount on education and 78. 4 per cent had no savings.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

56. A sociological study of members and non-members of Primary Agricultural Credit Society.

To analyse the socio-economic conditions of members and non-members, to study the general working and problems of the society in serving rural society and to identify the sociological factors, if any, for the rural folk for not coming under the fold of cooperative movement at the grass root level.

Survey method and interview technique adopted. Out of the 13 villages covered by the society, one village selected by lot method and 50 members and 50 non members selected by lot. Purposive sampling procedure followed for selection of society.

It was observed that most of the benefits of the society were enjoyed by the big and high caste farmers. Tenant farmers were not benefited from the society. Harijans benefited the least.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

57. A study of the socio-economic conditions of freed bonded labourers in Talavady block in Sathyamangalam taluk, Coimbatore district.

To study the socio-economic conditions of freed bonded labourers and the effects of State action on their living conditions with reference to their employment, wages, income and living conditions.

Personal interview and census method adopted. All the 80 freed labourers in the Arulvady, Mettalvady, Mallanguli, Thiginari and Byyannapuram villages were interviewed. Suitable tables were framed, scoring procedure was also used and the chi square method employed to find out the relationship of income, living conditions and opinion about masters with reference to their period of bondage.

It was observed that the system of bonded agricultural labourer was traditional, the majority from Rs. 500/, to Rs. 1500/-, transferred from their forefathers. After they were freed, they felt some sort of mental and physical

freedom and their level of living conditions improved. After the bondage, agriculture was the primary and agricultural labour (coolie) was the secondary occupation.

Commencement	July 1977
Completion	March 1978
Degree	M. Cop.

58. Living and working conditions of child labourers in rural areas.

To study the nature and magnitude of child labour in rural areas, the prevailing conditions of child labour with regard to type of work, duration of employment and computed and imputed wage level proportion to the total income of such households.

The study was in two villages, Athoor and Veerakkal in Athoor block, Madurai district. By stratified random sampling about 80 child labourers and their households, 40 employers of the attached child labourers and 40 farmers employing children were selected. From the data collected by field survey and personal interview direct and two-way tables were constructed. Statistical methods like range, average, mode co-efficient correlation, chi-square etc. were applied.

The child labourers were mostly from the low economic strata and from scheduled castes (66 per cent) which was mainly due to economic difficulties. About 51 per cent of the child labourers were illiterate. The average working and average income was Rs. 293/-per year.

Commencement	July 1977
Completion	March 1978
Degree	M. Cop.

59. Living and working conditions of child labourers in rural areas.

Objectives same as in item 25.

The study was conducted in Vadugapatti and Mettupatti villages in Musiri and Muthampatti blocks respectively of Tiruchirapalli district. About 80 child labourers, 80 child and labour households, 28 regular employers of child labourers and 40 farmers employing child labourers on casual basis were selected by random sampling. Separate interview schedules used for collecting data. Same method used as in item 25.

About 76 per cent of child labourers belonged to the most backward community—males being more. 43 per cent were illiterate. About 53 per cent were employed in agricultural sector. The average proportion of child labour earnings was about 27.37 per cent of the total family income. 73.75 per cent of the child labour households were below the poverty line.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

60. A study of income, expenditure, savings, investment pattern and indebtedness of rural households.

Field survey and personal interview technique employed. Three schedules—households census schedule, village schedule and households interview schedule were used for collecting information. By purposive sampling two villages were chosen and on stratified proportionate sampling 120 respondents were selected proportionately from each

strata, in which the households were stratified on the basis of occupation. The villages were — Pannimadai and Vellakinaru in Coimbatore taluk.

84 per cent of the respondents were earning below Rs. 6,600 as annual income. 58 per cent of the income was spent on food. About 50 per cent had borrowed from non-institutional agencies. The average savings per family was Rs. 832/-.

Commencement	July 1977
Completion	March 1978
Degree	M.Cop.

COMMERCE

Annamalai University, Annamalainagar.

61, Impact of multi-agency approach of rural credit in Thanjavur District.

Reported in Bulletin, 1977, Vol. VII, Nos 5 and 6, page S. 17.

62. Deposit mobilisation by the Private Sector Banks in Tamil Nadu.

Reported in Bulletin, 1977, Vol VII, Nos 5 and 6, page S. 17.

63. Development of entrepreneurship in Tamil Nadu.

Reported in Bulletin, 1977, Vol VII, Nos 5 and 6, page S. 17

64. Vanaspathy in India.

Reported in Bulletin, 1976, Vol. VI, page S. 12

65. Small lorry operators in Tamil Nadu—a critical study.

Reported in Bulletin, 1977, Vol. VII Nos. 5 and 6 page S. 16.

66. Agricultural co-operative credit societies in the Union territory of Pondicherry.

To critically examine the working of agricultural cooperative credit societies in the Union territory of Pondicherry and compare their efficiency with those of other union territories.

By field work and collection of primary data through questionnaire and interview.

Commencement	14-10-77
Completion	13-10-78
Degree	M.Phil.

67. Urban transport of Tiruchirapalli.

To study and analyse the different modes of urban transport, demand and supply, road network, cost structure, fare structure, maintenance policy, management pattern of the private and public sector transport undertakings and urban transport undertakings and urban transport problems.

By personal interviews.

Commencement	Nov. 1977
Completion	May 1978
Degree	M.Phil.

68. Economics of flower business in Madurai District.

To find out the profitability in the cultivation of flowers, assess the big role of commission agents, study the price fluctuations, point out the defects in the marketing of these perishables and highlight the participation of transport agencies including the airlines in this line of business in Madurai district.

By field enquiries using schedules and questionnaires.

Commencement	Oct. 1977
Completion	May 1978
Degree	M.Phil.

69. Progress of Lead Bank scheme in South Arcot District.

To find out how far the objectives for attaining the scheme has been achieved in South Arcot District by the Lead Bank and to suggest appropriate measures to accelerate the tempo of the scheme.

By questionnaires.

Commencement	Oct 1977
Completion	May 1978
Degree	M.Phil

70. Urban Co-operative Banks in South Arcot district.

To study the working of Urban Co-operative Banks in South Arcot District and the future prospects for urban banks.

Primary data to be collected by questionnaire and interview.

Commencement	Oct 1977
Completion	May 1978
Degree	M.Phil.

EDUCATION

Indian Institute of Technology, Madras.

71. Identification of needs, aspirations and perceived goals of engineering education by engineering college faculty.

To assess faculty opinion regarding the goals of undergraduate engineering education identified by Delphi experts (study conducted in 1975-76) and to identify the needs and aspirations of engineering college faculty and variables influencing them.

By questionnaire survey with 2,000 all India sample and another 3,000 all India sample—Data to be computerised and statistical analysis made.

Commencement	
Completion	June 1978
Degree	Nil

A study for Ministry of Education, Government of India.

72. Identifying goals of engineering education.

To identify the goals of undergraduate engineering education for the coming decade.

By use of Delphi technique, questionnaire, interview and conference.

Commencement	Sept.	1975
Completion	December	1978
Degree		Nil

A study for the Ministry of Education, Government of India.

Madras Institute of Development Studies.

73. *Rural Primary education and adult literacy in Tamil Nadu.*

Reported in Bulletin, 1977, Vol. VII Nos. 5 and 6, Page S. 19.

74. Non-formal Education for Harijan Agricultural Labourers in Tamil Nadu.

Two villages each from Chingleput and Thanjavur Districts chosen at random and 120 households each in the two districts interviewed for collection of information and data using a questionnaire.

Commencement	Sept.	1977
Completion	June	1978
Degree		Nil

GEOGRAPHY

Sri Mennakshi Government College for Women, Madurai.

75. *Village survey, Field survey, traffic survey.*

To analyse the socio-economic aspects of the village life the volume and mode of traffic in the heart of a city and to study the work of a river.

The socio-economic survey was conducted in 15 villages in Madurai District. A traffic survey was conducted in Garipalayam for 2 hours. The frequency of 2, 3, and 4 wheeler trafic to and from Madurai was calculated.

Commencement	I and II Sem-
Completion	ester 1977–78
Degree	Nil

HISTORY

Annamalai University, Annamalainagar,

76. *Pandya religion.*

To examine the religious condition of the Pandyan period with reference to epigraphic and literary sources.

Commencement	1977
Completion	1982
Degree	Ph.D.

77. Toynbee's interpretation of Indian History.

Reported in Bulletin, 1975, Vol. V. Nos. 5 and 6, Page S. 16.

78. The role of Feudatories in Chola history.

Reported in Bulletin, 1975, Vol. V. Nos. 5 and 6, Page S. 16.

79. History of later Pandyas.

Reported in Bulletin, 1975, Vol. V. Nos. 5 and 6, Page S. 16.

80. Rise and fall of the French in the Carnatic.

Reported in Bulletin, 1977, Vol. VII, Nos. 5 and 6. Page S. 22.

81. The Thiruvidaimarudur temple in history and legends.

To trace the history of the temple from the beginning to the present day by an analytical study of the literary and ephigraphical evidences.

Commencement	June	1977
Completion	June	1978
Degree		M.Phil

82. The Thondaimans of Pudukottai.

Reported in Bulletin 1975, Vol. V, Nos. 5 and 6 Page S. 16.

83. The Tiruvannamalai Temple.

To study the development of the temple under various dynasties.

Commencement	June	1977
Completion	June	1979
Degree		M.Phil

84. Tamilagam in 9th Century A. D.

To reconstruct the political, social, religious and cultural history of this period.

Commencement	June	1977
Completion	June	1979
Degree		M.Phil

85. Religious policy of imperial Cholas.

To trace the religious policy of the imperial Cholas, condition of Saivism, Vaishnavism and other religions under the Cholas.

By study of literature, Archaeology and inscriptions.

Commencement	June	1977
Completion	June	1979
Degree		M.Phil

PSYCHOLOGY

Annamalai University, Annamalainagar.

86. A psychological study of consumer behaviour towards super markets, in Tamil Nadu.

Reported in Bulletin, 1975 Vol. V, Nos. 5 and 6, Page S. 18

87. A study of Perception, Bodily response and personality.

Reported in Bulletin 1977, Vol. VII Nos. 5 and 6, Page S. 22

88. Attitudes of the adolescents towards themselves and towards their parents and school.

Questionnaire method is to be used. Stastistical treatments like Mean, S.D., critical ratio and correlation and analysis of variance are to be done.

Commencement	3-10-77
Completion	3-10-78
Degree	M.Phil

89. A study of vocational interest in relation to socio-economic status and personality among P.U.C. students.

To find out the vocational interest of PUC students and how it is related to the personality factors.

Field survey method proposed. Two scales set up one in relation to vocational interest and the other related to personality factors.

Commencement	1-10-77
Completion	1-10-78
Degree	M.Phil

90. A study of the achievements of the Secondary school students in relation to socio-economic factors and personality.

Intends to adopt the normative survey method of research and to apply a questionnaire as a tool of research to be prepared through a pilot study.

Commencement	1-10-77
Completion	—
Degree	M.Phil

91. A study of the relationship between scholastic achievement and intelligence of adolescent girls in secondary schools.

Intends to adopt the normative survey method and apply a questionnaire as a of research to be prepared through a pilot study.

Commencement	1-10-77
Completion	—
Degree	M.Phil

University of Madras

92. A study of creativity among schizophrenics and normals.

To find out how far the creative aspect indicated by comparing this aspect with the normals. The effect of intelligence is also studied.

Sample of 40 Schizophrenics who are suffering from a mild degree of illness and undergoing treatment but are able to function in normal society are studied for creativity by the use of Wallach Kogan test and compared with the matched group of normals to find out the significance of difference between them.

Commencement	June 1977
Completion	May 1978
Degree	M.Phil

93. Suggestibility and hysteria.

To find out the differences in the primary and secondary suggestibility of hysterics and dysthymics.

To study primary suggestibility Mull's body sway test will be used. Secondary suggestibility will be studied with the help of brightness perception, time perception, etc.

Commencement	1-12-76
Completion	—
Degree	Ph.D.

94. Bilingualism in children.

A study of adjustment problems of bilingual children.

Interview, observation, questionnaire and other psychological tools will be used to collect the data regarding the different variables under study.

Commencement	Mar.	1978
Completion		—
Degree		Ph.D.

95. A study of risk taking behaviour among managerial personnel.

To find out whether there exists any relationship between risk taking behaviour and future orientation among managerial personnel.

Two types of organisations are to be taken with different levels of management. These in turn will be grouped into three different levels of risk involvement. Future orientation will be measured in terms of different levels of risk involvement.

Commencement	Sept.	1977
Completion	Sept.	1979
Degree		Ph.D.

PSYCHOLOGY

Gandhigram Rural Institute, Gandhigram.

96. A study of the opinion of urban hospital nurses about working in rural areas.

To find out the opinion of nurses in urban locations (hospitals) about working in rural areas and the extent of influence of socio-economic factors on their opinion and if experience of working in rural areas as well as the imagined situation affect opinion.

Data collected by a questionnaire administered to 1/3 random sample of nurses working in the Erskine Hospital, Madurai. The total score for a nurse was computed, and the data was treated to statistical sophistication.

Commencement	Sept.	1976
Completion	March	1977
Degree		M.A.

SOCIAL WORK

Loyala College, Madras

97. Some youth welfare agencies in Madras City.

To find out the aims of the Don Bosco Youth Centres at Perambur, Basin Bridge, Broadway and Vyasarpadi, Madras. To find out how far the staff and youth are aware of these aims and achieve their goals. To suggest ways and means of improving the services rendered in in these youth centres.

Interview schedules for the staff and questionnaire for the youth of the centres used. Available documents at the centre like accounts, news-bulletins etc. were perused and also observation schedule covering various programmes and activities used. There was a pilot study and pre-testing before the detailed study.

Commencement	1-3-1977
Completion	8-3-1978
Degree	M.A. Social Work

98. Collective bargaining in the English Electric Co. of India, Limited, Madras.

To find out the workers' view of collective bargaining and the views of management and workers regarding its effectiveness and to find out the preferred mode of dispute settlement.

Out of a universe of 1,050 workers in the firm, a sample of 50 workers was chosen—taking every 21st worker on the pay roll. A questionnaire was administered to the management officials and interview schedule used for workers and trade union office bearers.

Commencement	6-3-1977
Completion	14-3-1978
Degree	M.A. Social Work

99. Role of welfare workers in factories in Madras.

To enumerate the functions discharged by the welfare officers; to find out how far they were able to administer the management's welfare measures, solve the problems of employees and create an atmosphere of peace.

100. Motivation of the workers of Pallavan Transport Corporation Ltd., Madras.

To evaluate the motivation of workers of the PTC.; to study the impact of intrinsic and extrinsic factors on the motivation of workers; to find out the effect of schemes like Production Incentive Bonus, Longevity Pay Scheme etc.

50 workers were chosen as sample, selecting every 10th worker on the roll of 600. A motivation rating scale was used for studying the motivation of workers. A pilot study and pre-testing were undertaken before the detailed study.

Commencement	9-3-'77
Completion	12-3-78
Degree	M.A. Social Work

University of Madras—Department of Psychology.

101. A psycho-social study of institutionalised children.

To find out how far institutionalisation is feasible or not feasible for destitute children, so as to suggest alternative methods of care for them and to suggest workable and practical recommendations on the basis of the study to CSWB.

A comparative study of 100 institutionalised and 100 non-institutionalised children with regard to all the variables to be made using observation, interview and psychological tests.

Commencement	July 1977
Completion	July 1980
Degree	Ph.D.

Gandhigram Rural Institute, Madurai.

102. The awareness among village women of the roles of various workers concerning Family and Child Welfare Programmes in rural areas.

To understand the awareness among village women of the various programmes and to find out the extent to which village women are able to identify the functional areas of different welfare workers.

Field survey methods and interview technique were used on 107 respondents chosen on the basis of systematic random sampling from two villages of Dindigul panchayat, Madurai district. The study revealed that many of the respondents were aware of the roles of the Family and Child Welfare workers, but identifying the workers was not satisfactory.

Commencement	Sep	1976
Completion	March	1977
Degree		M.A.

SOCIAL WORK

The Madras School of Social Work, Madras.

103. Socio-economic status of Port Trust Workers.

A three pronged approach evolved which included interviews with workers, and their wives and relatives and discussions with section heads/superiors with interview schedules for workers and their wives and interview guide for discussion with section heads. The universe for the study was all the class IV and class III employees of the Port Trust whose salary is Rs. 150/- and below. A sample of 448 employed (6 per cent of the workers) representing all the seven departments selected by simple systematic random sampling, living in Port Trust colony and outside proportionately, interviewed.

Commencement	1-4-77
Completion	31-7-77
Degree	Nil

A study sponsored by the Madras Port Trust.

104. Evaluation of NSS special camping programme, "Youth for Rural Reconstruction", 1977-78.

To determine the extent of target achieved, in organising camps by various States during the year 1977-78; to assess the nature of rural reconstruction work undertaken by students; to ascertain the extent of student participation; to explore the nature of community participation; to examine the conduct of camps in terms of planning, organisation and mobilisation of resources, to ascertain camp administration; to assess the views of camp organisers; to determine the views of student leaders and ascertain the opinion of village leaders on the usefulness of camps.

The study was confined to five states—Andhra Pradesh, Karnataka, Kerala, Orissa and Tamil Nadu—and Union Territories of Pondicherry and Lakshadweep — Five questionnaires were used i.e. one each for all Programme Officers, student leaders, University co-ordinators, village leaders and one for evaluating institution.

Commencement	June 1977
Completion	April 1978
Degree	Nil

A study sponsored by Ministry of Education and Social Welfare, Government of India.

105. A study on the level of development of Social Welfare Services in Tamil Nadu.

To study the nature and magnitude of current social welfare problems; identify the welfare needs; analyse the present state of welfare services in regard to children, women, the physically handicapped, the aged etc., to identify the administrative structure for welfare services, planning machinery for social welfare, voluntary effort and perspectives for future development of social welfare services.

Commencement	20-7-77
Completion	May 1978
Degree	Nil

Study sponsored by the Union Department of Social Welfare, Government of India.

106. Evaluation of Regular NSS work, 1977-78.

To ascertain the various types of regular NSS activities undertaken by the colleges; to bring out the socio-economic and other characteristics of student volunteers and programme officers; to examine some aspects of NSS unit administration; to assess the views of Vice Chancellors, Principals and University co-ordinators; to assess the achievement of NSS in adopted and other than adopted areas/programmes and to examine some aspects of regular NSS activities with reference to planning and organisation.

The study was confined to four States-Andhra Pradesh, Karnataka, Kerala, Orissa, Tamil Nadu and Union Territories of Pondicherry and Lakshadweep. Four different questionnaires and interview guide were used. Questionnaire 1 was for Programme Officers in colleges and from each samples; selected on random sampling. Questionnaire 2 administered to 5 per cent of students in colleges chosen, questionnaire was the interview guide for discussion with Vice-Chancellors; Questionnaires 4 and 5 were for Principals of colleges and co-ordinators of universities.

Commencement	Jan 1978
Completion	June 1978
Degree	Nil

A study sponsored by the Ministry of Education and Social Welfare, Government of India.

SOCIOLOGY

Directorate of Census Operations Tamil Nadu and Pondicherry.

107. Intensive study of selected towns.

Reported in Bulletin 1977 Vol. VII Nos. 5 and 6, page S. 24.

Commencement	1973
Completion	1979
Degree	Nil

108. Re-study of Villages.

Reported in Bulletin Vol. VII. Nos. 5 and 6. page S. 24.

Commencement	1973
Completion	—
Degree	Nil

Gandhigram Rural Institute, Madurai.

109. Rural Citizens Forum—a study in Kerela.

To find out the awareness among the members of the Rural Citizens Forum (REC) about the organisational characteristics peculiar to the Forum and to assess the factors contributing to the success/failure of a forum.

Four forums out of 55 operating in a district in Kerala were selected. All the members of the forum were the respondents for data collection. The major tools of data collection was an interview schedule - group interview on the basis of purposive sampling.

Commencement	Sep 1976
Completion	March 1977
Degree	M.A.

Annamalai University, Annamalainagar.

110. A sociological study of the Dikshithar community of Chidambaram.

To examine the caste identity of Dikshithars against ceremonialism, ritualism, priest craft and orthodoxy and to bring out continuity and change in related attitudes.

For data collection, questionnaire, observation, interview and participation used.

Commencement	Feb 1972
Completion	1977
Degree	Ph.D.

111. Problems of community Development personnel.

To study how the functioning of the community development is affected by the personal problems of C.D. personnel. It is also to study how the functioning of C.D. personnel is affected by the problems peculiar to different communities and its impact on C.D. itself.

Questionnaire and interview used and also related literature studied.

Commencement	1-8-74
Completion	1-8-79
Degree	Ph.D.

112. A socio-historic study of the art and architecture of the Chidambaram temple.

To interpret sociologically the art and architecture of the Chidambaram temple.

By observation and documentary study of inscriptions etc.

Commencement	1-1-74
Completion	1979
Degree	Ph.D.

HOME SCIENCE

Sri Avinashilingam Home Science College for Women, Coimbatore.

113. To study (a) the impact of the 20 point programme in a selected rural community in Coimbatore District.

To throw light on the level of achievements of the Economic Programme in a selected rural community and suggest further developmental programmes to be undertaken in rural India.

The village Idigarai, 18 kms away from Coimbatore was selected. One hundred households of low and middle income groups were selected and data was collected by interview method. It was found that the 20 point programme had brought about some useful changes in the day to day life of the people.

(b) Raising the health status of a Harijan community. To throw some light on the health status of the selected community and to improve the health status of the community by introducing action programmes.

Gandhinagar Harijan Colony, five kms from Coimbatore was selected. With the help of one doctor and two technicians, the classical examination of children was conducted. Charts, posters, informal talks, film shows etc. were used to educate the samples. The action programme included providing of bins, Janata refrigerator, personal health check up, nutrition education etc.

Commencement July 1976
Completion April 1977
Degree M.Sc. Home Science

114. Establishing and monitoring a college canteen on non-profit basis.

To study the possibilities of (a) providing adequate nutritious food at a reasonable price according to the Tamil Nadu Food Control Order, (b) giving opportunities for college students for earning while learning, (c) training students in skills and extra curricular experience, (d) employing school drop-out boys and illiterate women, and (e) giving non-formal education to these employees.

For organising the canteen a sum of Rs. 500/- was provided by the management. Two persons were employed permanently. The menu and receipes were planned considering student preferences. Training was given to cook, helper and student participants who were the B.Sc. students. Evaluation was done by questionnaire given to 300 regular customers.

Commencement Oct. 1976
Completion March 1977
Degree M.Sc. Home Science

115. Cost trends in a non-profit Janata Canteen.

To assess the cost control possibility and suggest improvements for the future running of the canteen, installed in the Central bus stand for serving Janata lunch and snacks. The running of the canteen was studied by an investigator during its working hours and data regarding income and expenditure, receipts and issues of food and market trends of prices were collected from the records.

Commencement May 1976
Completion March 1977
Degree M Sc. Home Science

116. Portion Control of selected receipes in Catering.

To make the Janata meals programme a success through correct purchasing routines, careful storing, mean and portion controlling costs, controlling the adequate nutrients and minimising waste.

The college took steps to implement try and evaluate food controls in two food service institutions namely Janatha and Amudham Canteens. As per Miller and Guodenoris (1962) advice for standardization procedures for formulating testing and developing selected recipes were carried out. The recipes were standardised to provide maximum nutritive value, satisfaction and a regular flow of income to improve the quality; to control the costs to get adequate portion sizes and satisfy the clienteles by serving standard quality product.

Commencement July 1976
Completion March 1977
Degree M.Sc. Home Science

117. Nutritional status of well-to-do infants and pre-school children.

1. To assess the nutritional status of well-to-do infants and pre-school children through (a) Nutritional Anthropometry, (b) clinical assessment (c) food consumption, 2. to elicit information on (a) weawing practices (b) history of illness (c) immunisation measures adopted and 3. develop norms for body measurements from the data obtained.

A sample of 924 children (boys and girls) with a monthly per capita income of Rs. 200/- and above was chosen for case study. Data on family background, mortality, morbidity pattern, weawing and dietary practices were elicited through a questionnaire. Physical measurements such as length, weight etc. were recorded for the entire sample. On a subsample data food and nutrient consumption was elicited through 24 hour recall method. The nutrient intake met the dietary allowance recommended by ICMR.

Commencement July, 1976
Completion Feb 1977
Degree M.Sc. Home Science

118. Availability of B carotone from Papaya to pre-school children of low income group.

To gauge the availability of pro-vitamin A or B carotene from Papaya.

Ten children attending a Balwadi at Naikenpalayam were selected. The study consisted of two phases. During the first phase the children consumed their home diet supplemented with the vegetable bulgar wheat uppuma and the food intake was recorded for three days. During the second phase, 136 gms of ripe papaya at a cost of 6 paise which contributed 1,200 mg. of B carotene were fed to the children. The B carotene intake and excretion were determined and this facilitated the estimation of absorption of B carotene from papaya.

Commencement Aug 1976
Completion March 1977
Degree M.Sc. Home Science.

119. Nutritional evaluation of improved local diets based on ragi and rice on pre-school children.

To evaluate the impact of two low cost, locally available rural diets based on ragi and rice on pre-school children.

Two groups of twentyfive children each from low socio-economic groups between the age range of 2½ to 3½ years were selected for the experiment. Another comparable similar group was selected as control group. The two groups were fed with low cost locally available ragi and rice based diet mixtures. The nutritional impact was evaluated by anthropometric measurements, biochemical estimations, clinical examination and record of food intake.

Commencement Aug. 1976
Completion Feb. 1977
Degree M.Sc. Home Science

120. Nutritional outcome of improved local diets based on ragi and rice for expectant women.

To evaluate the nutritional outcome of two improved diets based on ragi and rice on the nutritional status of expectant women and their new born.

Two groups of fourteen expectant women belonging to the same socio-economic group in the first trimester of pregnancy were selected to be fed the rice based and ragi based diets respectively. Another comparable similar group formed the control unsupplemented group. The nutritional outcome was assessed through the food and nutrient intake, weight gains etc. and the anthropometric measurements of the new born.

Commencement Aug. 1976
Completion Feb. 1977
Degree M.Sc. Home Science

121. Basal Metabolic Rate (BMR) of adolescent girls and young adult women.

To measure the BMR of adolescent girls and young adult women residing in school and college hostels.

Six subjects from the ten age-groups 13 to 22 years of adolescent girls and young adult women residing in high school and college hostels were selected. The BMR was determined for three consecutive days by using Benedict Roth apparatus, skinfold thickness, minary creatine were measured, food intake was recorded for the days when BMR was measured. Energy and protein intake were calculated.

Commencement Aug. 1976
Completion March 1977
Degree M.Sc. Home Science

122. Standardising body measurements for different age groups for making garments.

Measurements required for garments are outlined and these are obtained from different sections of age-groups. These are standardised.

Commencement 1-6-1977
Completion 3-3-1978
Degree M Sc. Home Science

123. Consumer preference for clothing selection.

To find out some of the preferences of consumers in fabric preference for selected age-groups.

Proforma has been prepared and the technique of interview followed. Data collected and analysed.

Commencement 1-6-1977
Completion 3-3-1978
Degree M.Sc. Home Science

124. Evaluation of Balasevika Training Programme.

To evaluate the quality of the ongoing *training programme* of Balasevikas run by the ICCW at different centres and the utility of training in terms of developing skills necessary for the proper execution of responsibilities in the work situation. Ten centres in the Southern Region— Tamil Nadu, Pondicherry, Karnataka, Kerala and Andhra Pradesh — were selected. The investigators using observation interview and questionnaire schedules, collected data regarding the location of the centres, area, number of class rooms, laboratories, libraries, etc., the enrolment of trainees, staffing pattern, details about the trainees since 1971 onwards. The secretary of ICCW, the principal and teaching staff were interviewed. Interviews with five Balasevikas, trained and employed in various sectors were also part of the project. The data will be analysed.

Commencement 1-7-1977
Completion 30-6-1978
Degree Nil

A Government of India Project

125. Initiating non-formal education programmes in selected *Mahalir Manrams*.

To organise women into group as members of *Mahalir Manrams* and to create in them the awareness of the need for women's leadership and initiative in the community.

The 21 days stipendary training course on Save Grain Campaign for 50 rural farm women from 10 villages was a highly challenging and illuminating project.

Commencement Aug. 1976
Completion April 1977
Degree M.Sc. Home Science

126. Introducing subsidiary occupations in selected villages for improving the villagers' economic condition.

The socio-economic conditions of the villages were studied and the investigators approached the Commercial Bank to provide financial aid to start subsidiary occupations. The majority of the selected families were in the income range of Rs. 100 to Rs. 300 per month. Most of the families were interested in dairy farming. In village 1, 31 per cent of the families were sanctioned Rs. 501–Rs. 2,000; in village 2, 60 per cent with Rs. 1,001-1,500; and in village 3, 38 per cent Rs. 1,001-1,500 is the highest amounts in respective villages. Five families in village 2 were interested in cow dung gas plant for household fuel.

Commencement Aug. 1976
Completion April 1977
Degree M.Sc. Home Science

127. Impact of the five days training in applied nutrition on the members and convenors of *Mahalir Manrams* in Tamil Nadu.

An evaluation study was conducted covering 150 trainees from 14 ANP Blocks in Tamil Nadu. The study revealed that the training was very useful both in terms of acquisition of knowledge and development of desirable habits with regard to food production, nutrition and health to the trainees.

Commencement Aug 1976
Completion April 1977
Degree M.Sc. Home Science

128. Developing leadership among Harijans.

To understand the pattern of leadership existing in a Harijan community and to develop leadership through all possible educational means. The Welfare Committee, the Youth Club (for boys) and the *Mahalir Manram* (for women) served as the agencies to provide opportunities for the men and women to develop their latent talents and leadership qualities. The material outcomes were obtaining milch cattle loans for animals for 23 families, organisation of a *Balwadi*, tree planting, sanction for a well, obtaining radio and reading room.

Commencement Aug 1976
Completion April 1977
Degree M.Sc. Home Science.

129. Initiating youth clubs in the villages for the development of leadership.

The study envisaged mobilising local leadership among youth in selected villages for national constructive purposes to realise the objectives of the community development programmes.

Commencement Aug 1976
Completion April 1977
Degree M.Sc. Home Science

130. Organising parent Education Programmes for parents of the *Balwadi* Children.

The Parent Education Programme was organised through the Parent-Teacher Association in the *Balwadi*.

The *Balwadi* has a whole day feeding programme for the children numbering 50. The attendance of the parents for the programmes on child care, nutrition, health, food production, tailoring, care of clothes and savings was effective.

Commencement Aug 1976
Completion April 1977
Degree M.Sc. Home Science

University of Madras—Department of Psychology.

131. A developmental study of curiosity in children.

To find the development of curiosity in children from 8 to 13 years of age in relation to Intelligence and Personality.

Observation and interview used as instruments. Personality inventories and intelligence scales with regard to the curiosity tests to be used as tools for the study.

Commencement July 1977
Completion July 1978
Degree Ph. D.

MULTIDISCIPLINARY

Gandhigram Rural Institute, Gandhigram.

132. Rural water supply and sanitation components of primary health care.

To examine water supply and its utilisation against existing sanitary conditions and available health and social facilities and to understand the knowledge awareness and practice (KAP) among rural people in respect of water supply and sanitation.

200 respondents from a group of 10 villages selected on a quota—sampling basis and three independent interview schedules to meet the objectives were applied. Data also collected at the State, district, and panchayat union levels.

Commencement	1-1-78
Completion	15-2-78
Degree	Nil

A study sponsored by UNICEF/WHO.

PHILOSOPHY

Pachiappa's College, Madras.

133. The concept of salvation according to the basic teachings of Saint Appar and Jesus Christ.

To find out the similarity of views between Saivism and Christianity with reference to the basic questions of life here and hereafter.

Commencement	1-2-76
Completion	—
Degree	Ph.D.

134. The positivist philosophy of Bentham, J.S. Mill and George Elliot.

To bring out the positive elements in the writings of the masterminds in literature and show how they contributed for the progress of English literature in modern times.

Commencement	1-4-77
Completion	1-4-80
Degree	Ph.D.

OTHERS

Indian Institute of Technology, Madras.

135. To identify the extent to which Hydrogen energy will play a part in the energy scenario in India in the next 20 years.

Technological forecasting, Delphi, Scenario, trend extra adopted.

Commencement	Mar. 1978
Completion	March 1980
Degree	Nil

A study for development of Science and Technology Department, Government of India.

Madras Institute of Development Studies, Madras.

136. Introduction to Mathematics and Statistics completed and under print.

PUBLICATIONS OF
MADRAS INSTITUTE OF DEVELOPMENT STUDIES

Publishers
Sangam Publishers, 11 Sunkurama Chetty Street, *Madras* 600 001

I. Books Published

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